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A CLINICAL CONSIDERATION OF MENTAL DEFICIENCY

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The term *mental deficiency* describes or sets apart a large heterogeneous group of individuals who have but one characteristic in common, an inefficiently functioning intelligence. The concept of intelligence as a particular form of mental functioning, rather than a form of mental structure, is emphasized because it lends itself to a more constructive clinical approach. The older conservative orthodoxy of intelligence as a mental structure entails the assumption that a mentally deficient person has an irremediable defect or lack of intelligence of a greater or less degree. Those of us, however, who have had the opportunity of making careful clinical studies of mental defectives over a period of years find that such a concept is not tenable in all cases. Raymond,¹ of the Walter E. Fernald State School, writes in an article entitled, "Intellectual Development in Morons Beyond the Chronological Age of Sixteen Years," in Volume 32 of the proceedings of the American Association for the Study of the Feebleminded. "It has been the writer's privilege to watch hundreds of boys and girls go through several years of training at the Walter E. Fernald State School and then return to community life. It has been amazing to see the vast improvement in poise, self-assurance and general appearance which many of these exhibit and to learn about the types of work satisfactorily and continuously performed and the wages received for such work. In fact the improvement has been so great in many of them that it is doubtful that any psychiatrist would be justified in calling them feebleminded. These same individuals, however, when little children and up to the age of at least 16 years, would be definitely classed as morons by all the yardsticks which we have for measuring intellectual capacity. There has been an opportunity to re-test these patients psychologically and many, even when past 20 years of age, have shown an increase of from six months to several years in mental age beyond that shown when they were 14 or 16 years of age." Camp and Waite,² in a report of four

cases of mental deficiency on parole from Letchworth Village published in the proceedings of the American Association for the Study of the Feebleminded, Volume 37, emphasized the same observations. Thus at the outset, when we refer to careful clinical study, we are already confronted with the need for a careful evaluation of this function we call intelligence.

The most generally accepted definition of intelligence is that of Stern³ in which he defines it as "The general capacity of an individual consciously to adjust his thinking to new requirements." This definition may be amplified by stating that intelligence is expressed physiologically through a complicated sequence of mental activity whereby an individual is enabled to perceive, memorize, associate and utilize experiences of the past in dealing with situations of the present. It may be predicated that the efficiency of the functioning of intelligence depends upon the complexity and integrity of the structural elements of the central nervous system, the quality of the physico-chemical equilibrium and the nature of the integration of the emotions.

Structural inadequacy of the central nervous system of either endogenous or exogenous origin may so reduce or interfere with intelligence functioning that the individual is rendered inefficient to a greater or less degree. The individual contacts his environment through the special senses. Stimuli thus received are carried along the efferent pathways to the brain cortex where the impressions they create are stored and constitute what is called memory. These countless memories are of value to the individual only insofar as they can be utilized by that process which is called association. The recent studies of Tilney on brain lipoids suggest that the amount of intelligence is dependent, among other things, on the richness of the inter-convolutional association fibres. Economo and Tilney have shown that the more highly evolved the species, the more complex is the architecture of the cerebral cortex. The recent discussion of Donaldson⁴ of the Wister Institute regarding the work of Hindze⁵ in Moscow and Paris indicates that there may be a very close relationship between the richness of the vascular supply to the brain and intelligence.

Children with certain types of lesions, namely, subcortical and

mid-brain lesions, incurred early in life, frequently have difficulty in expressing their ideas and thoughts and thus appear mentally deficient. In such cases the intelligence, although probably inherently normal, is not afforded an opportunity for its normal expression. Such children should be regarded as cripplerminded, rather than feeble-minded.

A disturbance of the physico-chemical equilibrium may well affect the functioning of intelligence just as it affects other biological functions. As an example of this, failure in mental development in the cretinous infant and mental deterioration in the myxedematous adult, are cited. More extensive research may show that other endocrine dyscrasias and possibly vitamin and amino-acid deficiencies may also result in a reduced level of intellectual functioning.

The relation of the direction of libidinous flow, libidinous development, libidinous aims, and fixations of the libido to the quantity and quality of intelligence presents a variety of intriguing problems. Emotional life and intelligence are not very far apart and by no means are they independent of each other. Deficiencies of intelligence in certain instances may be only another mode of expression of that same thing which is expressed in emotional or libidinous inadequacy. Alexander⁶ speaks of the influence of an over-strenuous, over-moral super-ego in the background of an inhibited personality. The ego unconsciously submits to restriction upon, or even renounces, certain forms of activity. Such a mechanism could readily cramp or restrict the functioning of intelligence. Jones⁷ thinks that inhibitions of interests may be the explanation in certain cases of what appears to be an intellectual incapacity. An inability to comprehend certain situations or the school curriculum may be fundamentally an aversion simply because there are certain symbolic associations with a primary unconscious, unacceptable idea and the child avoids all activity, including intellectual activity, which will bring about a super-ego condemnation. Ferenczi⁸ draws attention to a general inhibition of thought, a sort of affective type of hypochondria. Freud⁹ has frequently pointed out a phenomenon of intellectual inhibition in adults, who, as children, were exposed to a parental attitude which demanded

suppression of all doubts and curiosities especially in respect to sexual and religious matters.

The more recent work of L. Pierce Clark¹⁰ on the analytical approach in the treatment of certain types of hypophrenia shows that emotional conflict may be expressed in terms of intellectual ineffectiveness. Clark has also pointed out that in certain forms of central nervous system pathology seen in children the intellectual defect appears to be much more profound than it actually is because the injured part serves to absorb the greater part of the libido. Clark believes that the treatment in such cases should be directed towards freeing this libido thus making it available for objective purposes.

It must be apparent that the whole matter of intelligence is not as simple as it appears to be on the surface. It is a kind of mental functioning that is closely linked up with central nervous system structure, with metabolism and biochemistry, and with emotional organization. A breakdown or failure in any one of these factors may result in an ineffectively functioning intelligence which is the only symptom common to all mental defectives.

The term mental deficiency is inclusive of a wide variety of clinical types, pathogenetic mechanisms and etiologies. The term mental deficiency is just as inaccurate in clinical terminology as is the term insanity. The generally used terminology of moron, imbecile and idiot, as sub-groups of mental deficiency, is entirely inadequate for clinical purposes and represents merely a psychometrically determined differentiation based on the relative inadequacy of the functioning of intelligence. Classifying individuals as morons, imbeciles, or idiots is only another way of stating that they are slightly to profoundly defective. If an individual has an I. Q. of 49 he is an imbecile, but if it is one point higher, then he is diagnosed as a moron. The fallacy of a purely psychological classification may be seen in the instance in which, as a result of an encephalitic process, a child may be so severely handicapped that his intelligence level would be such as to cause him to be diagnosed as an idiot, while another patient, suffering from an identical disease process, may be so slightly incapacitated that he would be diagnosed as a moron; medically, however, they each represent the

same clinical condition. Clinical diagnosis cannot be based on mathematical formulae.

It would be just as rational to classify febrile diseases on the basis of the temperature rise as measured by the clinical thermometer as it is to classify mental defectives on their intelligence drop as measured by a psychometric test. In fact it would be more rational because we can have much more confidence in the accuracy of our clinical thermometer than in even the most widely used intelligence test. To the detriment of a better understanding of the problem we have too long been habituated to considering as a mental defective everyone who fails to come up to standard on an intelligence test and who is slow in school or who gets into social difficulties.

In considering the pathogenetic mechanisms underlying an inadequately functioning intelligence, clinical observation has shown us that there is a group of cases in which a generalized constitutional inferiority is especially predominant; in another group we find that infectious processes and trauma are in the ascendancy; in a third group there is present a peculiar degenerative or neoplastic-like process involving the brain structure; in a fourth group a faulty emotional organization is found. It is to be observed that the dysfunctioning intelligence is, in each instance, only a part of, or a symptom in, the total clinical picture.

With regard to neuropathology the sum total of what is known can be summed up in a few sentences. In mental deficiencies associated with an organic neurological syndrome a variety of pathological defects of the brain are found, ranging from what appear to be developmental anomalies to extensive replacement or degenerative changes involving the greater part of the whole cerebrum. The involvement, it is to be noted, is mainly cortical and chiefly present in the parietal, frontal and temporal lobes. The pathological conditions found were non-development, general or focal in several forms; massive sclerosis; diffuse sclerosis; degenerative changes in blood vessels, ganglionic cells or medullary substance; atrophy due to old hemorrhage; porencephaly; internal and external hydrocephalus; pachymeningitis; and rarely, brain tumor. What the pathological picture is in the brains of the mental defec-

tives of moron and borderline levels in the absence of an organic neurological syndrome cannot be stated with any finality. That there are no gross lesions, is a certainty. Microscopically the picture is confused by findings at variance with each other and dimmed by the insignificant number of cases studied. Irregularity in position of nerve cells in the cellular layers of the gray matter, reduction of association fibres and a poorly elaborated vascular tree are all reported to have been observed. Obviously the neuro-anatomical and neuro-pathological aspects of mentally deficient states have been sadly neglected.

We can, however, make a reasonable attempt to organize our thinking and our attitude about mental deficiency along more distinctly clinical lines. As an initial step in this direction the Committee on Nomenclature of the American Association for the Study of the Feebleminded, consisting of Dr. Ransom A. Greene, Dr. Harry C. Storrs, and myself, has recommended to the Conference on Nomenclature of Disease, a Classification of Mental Deficiencies. This classification is essentially clinical in nature.

CLASSIFICATION OF MENTAL DEFICIENCIES

Mental Deficiencies

- A. Due to prenatal (constitutional) influences.
 - 1. Familial mental deficiency¹
 - 2. Mongolism¹
 - 3. Mental deficiency¹ with developmental cranial anomalies²
 - 4. Mental deficiency¹ with congenital cerebral spastic infantile paraplegia
 - B. Due to infection (lower forms)
 - 1. Post-infectional³ mental deficiency¹
 - C. Due to trauma
 - 1. Post-traumatic mental deficiency¹—natal
 - 2. Post-traumatic mental deficiency¹—post-natal
 - D. Due to convulsive disorders
 - 1. Mental deficiency¹ due to epilepsy
1. Specify mental level as borderline, moron, imbecile, or idiot; intelligence quotient (I. Q.) based on 16-year level.
2. Specify type, such as microcephalic, oxycephalic, etc.
3. Specify infection.

- E. Due to disturbance of metabolism, growth or nutrition.
 - 1. Mental deficiency¹ with endocrine disorders⁴
 - 2. Mental deficiency¹ with familial amaurosis⁵
- F. Due to new growths
 - 1. Mental deficiency¹ with tuberous sclerosis
- G. Due to unknown causes not determinable in the particular case
 - 1. Mental deficiency¹, cause undiagnosed

The purpose of this communication is not to present simply a clinical classification. It is a plea, based on certain clinical observations, for a broad neurological and psychiatric attitude rather than a social or purely psychological attitude toward mental deficiency. It would stress the point again that mental deficiency is essentially a social condition and that its definitions always have distinct social implications. Although we are willing to concede that the term *mental deficiency* and its psychometrically determined sub-groupings of moron, imbecile and idiot, have important social and educational implications, we would emphasize that they are remarkably vague in their clinical implications. An attempt has been made to show that there is a wide variety of clinical conditions which for years have been grouped in a single class. This communication would indicate that as a clinical entity, mental deficiency is non-existent. Already there are indications of this. The writer¹¹ has only recently re-emphasized, in a report of several cases, that an intelligence defect in certain types of juvenile general paralysis, exists from birth or early infancy. These same cases had previously been regarded as mental defectives. Socially they were and still are mental defectives, clinically they are and always have been juvenile paretics. More recently still the writer¹² has described cases of juvenile dementia praecox in children as young as 4 or 5 years. By mental tests and by the social criterion they are mental defectives. Clinically, however, their poorly functioning intelligence is only one of the symptoms of a general mental disorder characterized by affective disturbances. At the Vineland Training School, Doll,¹³ in collaboration with Phelps, finds

1. Specify mental level as borderline, moron, imbecile, or idiot; intelligence quotient (I. Q.) based on 16-year level.
4. Specify type.
5. Specify type.

that under a special training technic, certain children who are socially called mental defectives and clinically called cerebral birth palsies are now able to exhibit a hitherto unexpressed reasonably good mentality. A more simple illustration still is a certain constitutional condition which if designated by the social or psychological term, mental deficiency or imbecility, leaves us with an extremely vague notion of the case but when we classify it under Mongolism we are enabled to conceive of it as a clinical entity.

And so, if we proceed to think along clinical lines, as we bring to focus our clinical training in constitutional, neurological and psychiatric medicine, eventually we shall arrive at a much more complete understanding, namely a clinical understanding, of the many psychopathological entities now grossly designated as, mental deficiency. I am firmly convinced that treatment and training methods will be more effective when they are arranged so as to fit the clinical condition rather than as they are now arranged mainly to fit the mental age level without regard as to what the other clinical factors may be. It is imperative that our previous, almost purely psycho-social attitude, be broadened so that we may think in terms of psycho-biological principles and facts.

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OBSSESSIONAL PHENOMENA IN SCHIZOID INDIVIDUALS IN RELATION TO EVENTUAL SCHIZOPHRENIA*

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The introduction into psychiatry by Kretschmer and Bleuler of the terms "schizoid and schizophrenic" has widened considerably our conception of psychoses in general. Beginning with the period of Morel and during the following periods of psychiatry, the terms neuropathy, psychopathy, abnormality and bizarreness of character were considered, so to speak, as states of incubation of inevitable psychoses. But Bleuler has demonstrated that there is a "Latent schizophrenia," in which the individual may spend a life-time without conspicuous psychotic symptoms and be socially adjusted. In such cases Kretschmer's terminology of "schizoid" was aptly devised and has oriented the interpretation in a new direction. With this new point of view the essential characteristics of a future psychosis become evident. Schizophrenia therefore contains two factors: one is what constitutes the specificity of the schizoid type, the other is what leads to the pathological mental process.

According to Kretschmer there are two biological types of individuals: one is cyclothymic and the other schizoid. The first group is characterized by alternating exaltation and sadness, the second by apparently contradictory features, viz., hypersensitiveness and at the same time frigidity. These phases in both groups may become superimposed or succeed each other. Clinical experience reveals the fact that there is a distinct psychic rhythm in both which is observed not only in formation of conceptions, in mental elaboration and psychomotor reactions, but also with regard to regularity or irregularity of psychic activity. The rhythm is more sharply distinguished in cyclothymic than in the schizoid individuals. In the first, for example, there is a clear correspondence on one hand between the mobility of the psychic rhythm and the exalted state; on the other hand between the slowness in succession of ideas and the depression. In the schizoid types there is frequently a lack of correspondence between the reception of impressions and the faculty of expression. For example, some-

*Read at the March meeting of the Philadelphia Psychiatry Society.

times the patient may react in a hypersensitive manner to a certain strong emotional factor, will hold on to it and then abruptly become detached from it; in other cases the patient may remain totally indifferent, indolent and cannot be aroused by an equally strong emotional factor. Even during the hypersensitive phase the will and the mode of thinking are slow, difficult, as well as in the phase of indolence there may be great capriciousness.

In schizoid individuals therefore the above mentioned psychic rhythm oscillates between suddenness or abruptness and indolence. These characteristics are fundamental and serve as a basis for the understanding of the psychotic phenomena which may develop in the lives of the two groups of cases. We will be concerned here exclusively with the schizoid type of two individuals in whom at first certain psychoneurotic manifestations in the form of obsessions were in evidence during a number of years, but finally the obsessive ideas became delusional and a true picture of schizophrenia with all its typical characteristics made its appearance and remained as such. Through the entire pre-psychotic period of life of these individuals one can observe the basic features concerning the above mentioned peculiarities in the special psychic rhythm so characteristic of schizoidism.

The histories are briefly as follows:

CASE 1. M. L., female, 35 years old, school teacher, was always considered a refined person. In early childhood she developed a liking for painting, the father being an artist of note. Circumstances, however, prevented her from taking up art as a vocation. She attended primary and secondary schools, and finally a Normal school. She always had to work hard, because of an inherent difficulty of memorizing. As a child and as an adult she was unusually sensitive and apparently tender. She would cry when a friend would accidentally sustain the slightest injury. She would become easily attached to her schoolmates, but not for a long time. She would drop them and get other friends. Her attachment would be exceptionally strong for the time it lasted, but she would become promptly reconciled in giving up her friendly relationship. In all matters she was capricious, changeable. Extreme obstinacy was an outstanding feature. She was very pedantic in her relations to her people, and to strangers, in her daily work and in her personal appearance. She was not responsive to the affection exhibited towards her by her parents and her brother (Case 2).

In spite of her apparent tenderness towards others she could not tolerate tender attention shown her by others. She was totally frigid. At times she showed cruelty towards the dog in the house, at others extreme affection. All these personality-characteristics were ignored by the parents, who were more interested in her school progress than in her emotional life. At the age of ten for the first time, an obsessional phenomenon made its appearance; she feared handling buttons. When accidentally her hands would come in contact with a button, she would be seized with terror, tremble and scream (*délire de toucher*). Her fear was based on the possibility of swallowing a button. This condition lasted a whole year and finally disappeared. In high school another obsessional phenomenon developed. The proximity of a girl friend, who had made a complete recovery from influenza disturbed our patient considerably. She figured out that she herself might be attacked by the same disease if she sat close to her friend. She feared to touch the friend's hand or clothes. This condition lasted four months. Her school work was satisfactory and she kept on making progress in spite of her obsession. In the normal school she developed ideas of inferiority. Although her work was not below the average, nevertheless she kept on complaining that she would never be able to accomplish anything, that the principal of the school would eventually force her to leave. This inferiority idea spread to other features of her life. She would spend considerable time at her toilet, constantly fearing that she would never be able to look and act like others. She would talk on this subject wherever she found herself, at school and at home. Finally she graduated. Soon she succeeded in obtaining a position as a teacher in one of the schools. She was very attentive, prompt and conscientious. At the end of the first year of teaching, she began to show a desire for isolation. She would lock herself in her room and neither her father nor mother could induce her to partake of food during an entire afternoon or evening. She was heard several times talking to herself. She did not speak voluntarily, but when questioned, she would either not answer at all or give very brief replies. At times she would appear morose and then all at once her facial expression would show an interest in others, but the latter was shallow and very brief. Soon it was observed that she was accumulating buttons, she would buy them in large quantities, pick them up on the street or on the floor of her home and cut them off her father's clothes. Sometimes she spent hours in assorting them, moistening her index finger and touching each of them, and laughing aloud. When spoken to about it, she said that she loved buttons, that they speak to her, and indeed she was often found addressing endearing terms to them. Her former schoolmates called on her frequently, but she would

sometimes dismiss them and at other times she would have them sit close to her, saying that their proximity would keep her from contracting diseases. More and more she would concentrate all her actions around her own personality and she withdrew progressively from all contact with her own people and friends. Hallucinatory images appeared to her more and more frequently. A complete and final schizophrenic state became established. It is now the twelfth year and there is no evidence of the slightest return to reality. Commitment to an institution was never entertained by the parents. She is confined to a suite of two rooms in charge of an attendant. The deterioration is becoming deeper and deeper.

CASE 2. O. L., aged 40, half-brother of the first patient, lived with his father's brother in the west. He was an illegitimate child. He would be brought to Philadelphia at first every three months to see his father, but later only once a year. His uncle gave me the following account of some of the patient's personality-characteristics. In childhood while in school, he was very shy and frequently kept to himself. He avoided his chums as much as possible in spite of the advances they made to him. Only occasionally upon the insistence of his uncle, he would accept an invitation to boys' parties and then he would be silent and not take part in games. He particularly avoided girls. Never would he address a single word to them. Physically he was in good shape. He made satisfactory progress in school, primary and high. Upon graduation he took a special business course. His uncle secured for him a position of bookkeeper. He was very accurate at his work, overconscientious and serupulous. On Saturday afternoons he remained at the office and would go over the week's work, to see if there were any errors. He held his position for six years and during that period the uncle as well as the employees of the establishment observed certain peculiarities about him. In the first year of his bookkeeping he would frequently ask every one during the day whether or not he greeted them upon his arrival in the office. At other times he would examine every window in the office almost every half-hour to make certain that they were tightly closed. In spite of the reproaches of his employer he continued the window investigation. The entire office force became used to it and did not interfere with his actions, since his work was highly satisfactory. At the age of 29, he was still without close friends. As he was very fond of music, he would go to concerts, but by himself. Upon his return he would sit up late until two or three o'clock in the morning without reading, but humming the sounds of the music he had heard. In spite of his uncle's attention and loyalty, he never developed an attachment to him. Quite frequently his patron would suffer from rheumatic pain and our patient at no time offered

the sick man any assistance. The same lack of attachment or affection was evident in him towards the housekeeper who practically reared him (the uncle being a bachelor). He was totally indifferent to everybody. Soon the uncle observed an unusual irritability in him and especially on the slightest remark made or advice given to him by his employer. He would also complain of feeling unusually tired in the morning hours. This somatic symptom coincided, as the uncle found out, with a night of excessive masturbation. He was fond of sweets and indulged in eating candy to excess. Gastric disturbances developed. His physician succeeded in curing the disorder. The patient, however, developed the fear of gastric malignancy. In spite of his healthful appearance and of partaking of three large meals a day, he nevertheless continued to fear. Chemical and roentgenological studies of his gastro-intestinal tracts were negative and he acknowledged the genuineness of such a report. Nevertheless he was not entirely free from fear. His bookkeeping work continued to be satisfactory. Later he gradually became listless, began to make gross errors in his work and neglected to go to the office at the proper hour. He was discharged by his employer. From that time on deep changes made their appearance; he would remain in his room for days, the meals had to be brought up to him. At times he would not take his food at all. At night he could be heard walking to and fro, would open his window and talk loudly. Evidently he became hallucinatory. In his conversation with the uncle, he showed distinct delusional ideas with particular reference to his body. He was convinced of having a generalized cancerous condition of every organ in his body. He refused food, because the latter, he said, aggravated the malignancy. Besides, he said, every evening somebody brings him a message as to the further progress of his malady. He soon became catatonic; for hours he was seen in an immovable state, with his hand outstretched. The deterioration became progressively greater, and at present at the age of 40, his condition remains unaltered.

A review of the life histories of the two patients before the psychotic phenomena began to be manifest, reveals that both present great similarity in their personality characteristics. What is striking, is apparently contradictory states of mood and disposition: Tenderness in attitude which alternates with indifference and indolence; and the passage of one state into the other is especially characterized by an abnormal rapidity. Moreover both patients showed during their pre-psychotic periods of life a dreamy-state, which was particularly pronounced during the episodic obsessional

manifestations. The behavior of both individuals during their school life and afterwards, when they were engaged in occupational work, indicated lack of depth and was full of contradictions in their relation to the external world. Herein lies the essential characteristic features of both individuals. It seems that at no time in the pre-psychotic period was there any real or vital contact with reality, not only in the patients' ideation, but also and particularly in the affective rapport to the external world. This was evident in their manner of speaking, in their gestures and in their general attitude. In their relation to others they show that they are invariably absorbed by their own inner life. Nothing penetrated them deeply enough, neither explanation nor objections on the part of their relatives or employers. They appeared to themselves as finished products. To the surroundings they gave the impression of being immobilized in life and of not being at all in contact with it. Therein lies the reason of their not being sociable. They preferred their inner world and their dreamy attitude towards the external world. They appeared to have no need for the latter and were totally disinterested in it. During their entire occupational period both gave the impression of sociable persons, but their relation to the surroundings was superficial, shallow and incomplete. The affective note which is always so essential in life, was strikingly wanting here. Nevertheless, it is important to call attention to the fact that, in spite of such radical defects in their psychic make-up, they were able at first to reach the comparatively high intellectual level, required to go through secondary schools and later to carry on intellectual occupations to the full satisfaction of everyone concerned, until the psychotic manifestations commenced to make their invasion. Even during the period of the obsessional phenomena, their work was not interfered with.

Such were briefly the fundamental characteristics of the two individuals who carried in them for many years traits of personality which were evident in childhood and in adolescent life but which remained unrecognized and not properly appraised until a collapse took place. These traits were manifest with greater clarity and emphasis, when the conspicuous psychotic phase came to the front. A moment of reflexion will show that the latter phase

was but a continuation and accentuation of all the events of the so-called normal life. The retired mode of living, the shyness, the avoidance of associating with others, the indifference and indolence, the outbursts of hypersensitiveness rapidly followed by, or alternating with, periods of frigidity or affective anesthesia, the tendency to isolation—all these traits became more and more pronounced. The patients withdrew then totally from the exterior world in order to lead a life of complete isolation and found contentment and happiness at their own fantastic horizon or by retreating into their interior world. The above mentioned lack of vital contact with the exterior world, which is so characteristic of schizoid individuals, became a permanent loss of contact. To sum up, the schizoid state became a final schizophrenic state.

It may be also of interest, from a psychopathological standpoint, to call attention to the relationship of the obsessive phenomena of our patients during their pre-psychotic periods of life, when an apparent social adjustment was in evidence. It seems that when the final psychosis was in a state of full development, the delusional contents bore a direct relationship to the contents of the obsessions during the normal social life. In 1914 (*American Journal of Insanity*) and again in 1926 (*Amer. J. of Psychiatry*) I discussed the subject of "Transition of Obsessions to Delusions," and reported several examples which showed that in a certain group of cases obsessive ideas may become the point of departure for eventual delusional ideas. While there was no direct transition in the two cases under consideration, nevertheless it was of interest to note that when a complete dissociation of consciousness took place with the onset of the final psychosis, the past unconscious experience which provoked the formation of obsessions, was aroused and it reasserted itself in full, broke through consciousness and became fixed, no more in a rudimentary obsessional proportion, but in the form of delusional and hallucinatory interpretations of the affective content.

It is not the purpose of this contribution to find a pathogenetic explanation for all the psychic manifestations observed in the pre-psychotic and psychotic periods of life of the two patients, but to lay a certain degree of emphasis on phenomena which have a direct

bearing on the present and subsequent mental life of persons who are brought to us for counsel and direction. I attempted to illustrate the value of recognition of Kretschmer's and Bleuler's ideas concerning the relationship of certain groups of personality characteristics to psychoses. The cases demonstrate to me the fact that schizoid types of individuals are potential candidates for schizophrenia, that while such individuals may for a long time be socially adjusted, nevertheless the character of their fundamental traits is such that the "sword of Damocles" is in constant attendance and a split-up may occur at any period of their life. Intelligent recognition of these personality-traits in due time, or at an early age, and an intelligent assortment and distribution of early activities in due proportion and in harmony with the intellectual and emotional material on hand, will enable us perhaps to avert formation of obsessional phenomena which are threatening signals, although in a primitive stage, of an oncoming psychosis. We are dealing therefore with problems of pure psychiatry as well as of mental hygiene.

SOME PSYCHIATRIC ASPECTS OF SUICIDE*

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Society today seems baffled by the problem of suicide. The commonly expressed rationalizations to account for its increase in times of depression, a determined effort on the part of relatives and others through dread or embarrassment of its implications to conceal true facts, together with a general misconception of its deeper significance, combine to render inadequate the advice and assistance of those who could do much toward decreasing its incidence.

As psychiatrists we find suicide so often a factor to deal with among our patients that we necessarily have to recognize it as an important part of our responsibilities. We hope to show, in presenting this group of patients who committed suicide in a psychiatric hospital, or at least were under treatment there at one time, that certain principles of practical value may be observed. There is undoubtedly a definite correlation between the suicidal drives of these patients and the suicidal desires of a larger number of persons who never came to the hospital for treatment, but the problem has many aspects and only certain features are emphasized at this time.

Our group of patients was obtained from a survey of cases dating back to 1912. Over this period of 20 years 11 men and 3 women died by suicide in the hospital. Compared to those under treatment during these years, this number represents a minute percentage of the whole. How many cases discharged during this period eventually committed suicide is not known. The group used to complete our 25 cases was selected from hospital records of patients discharged in recent years to which follow-up notes, including suicidal data, had been added.

Various statistical studies of suicide have been made and the features observed by others are for the most part in keeping with our small number. For instance, age is regarded as a significant factor, the suicide rate increasing with advancing years. Children rarely commit suicide, but beginning with adolescence each decade

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shows a steady and consistent rise. Statistics show that more than half of all suicides occur among persons 45 years of age or older. Of our patients, with the exception of three women (ages 19, 20, and 23) the age limits were sharply limited to the fourth, fifth, and sixth decades of life. Seven of the patients were in the fourth decade, 9 were in the fifth, and 6 including only 1 woman, were over 50 years of age. The men as a group averaged ten years older than the women, which is significant when one considers some of the psychobiological differences between the sexes. Although in our small group there are more women than men, suicide has been called a masculine type of reaction. Annually, compared to women, three times as many men commit suicide.

Concerning religion, 18 of our patients were Protestants, 4 were Hebrews, 2 were Catholics, and 1 was a Christian Scientist. This would appear to bear out statistical studies indicating that rigid religious discipline is probably a deterrent, even in the mentally ill. One of the Catholic patients burned herself to death, the other one lacerated her scalp and blackened both of her eyes by crashing her head against a grating before she eventually hanged herself. These procedures suggest a strong self-punishment or expiation motive, conditioned perhaps by religious training.

A history of previous psychotic episodes, the precipitating factors, and the duration of mental illness before admission varied a great deal, and in the earlier cases information of such nature was vague and inadequate. One patient had had an attack 6 years before, one 17 years previous, and one 25 years before the last attack.

Recorded precipitating factors of the group included suicide of wife, business and financial worries, physical depletion, alcoholic husband, fractured arm, death of daughter, death of son, possibility of bladder operation, contemplated marriage, failing potency, childbirth, and love affairs. Such an enumeration is confusing, and means little on its face value. Each has a more or less important value, however, in its proper setting of the individual case.

Concerning the duration of the mental illness before admission one patient had been sick for seven years. Four others were reported as having been ill from one to three years. The rest of the group ranged from four to five months, and the duration of the

shortest attack was ten days. Some had had previous admissions with us or in other hospitals and sanitariums.

The actual residence of the patients who committed suicide in the hospital varied from five days in one case to two years and eight months in another.

The statistical diagnoses of the cases were as follows:

	Male	Female	Total
Involution melancholia	5	4	9
Manic-depressive psychosis	4	4	8
Dementia præcox	3	3
General paralysis	2	..	2
Psychopathic personality	1	1
Psychoneurosis	2	2
	—	—	—
Total	11	14	25

As to their mood and general reactions, with the exception of two dementia præcox cases and one case of general paralysis, these patients invariably appeared depressed, restless, and agitated, invariably they were tense, anxious, and worried. A feeling of hopelessness together with vague apprehensions was very common. A number of them were seclusive, a few sobbed, some, particularly men, were noted holding their heads in their hands; others whined and cried so often, reiterating to everyone the story of their hopelessness and hypochondriacal complaints that little attention was paid to them and such remarks were noted as "Patient improved but continued to seek sympathy." One patient, two days before he hanged himself, was noted as, "improved but refused to admit it." This, perhaps, should not be criticized too severely, as it is a matter of experience that patients often *appear* better once a definite plan for the suicidal act has been worked out. The escape is near and inhibitions are released. Such patients would occasionally be laughing and joking, losing themselves for the time being in the contacts and interests about them.

One of the outstanding features of the longitudinal picture of these patients was sleeplessness; it was a continuous worry to most of them and led to much anxiety and despair. The loss of sleep, however, was not so important as the *patient's dread* that by not being able to sleep he would eventually lose his mind. One or two

cases were mute and retarded. Generally we are not too concerned about retarded patients, but nevertheless the possibility of impulsive acts must be considered. Two of the dementia praecox cases were excited, homicidal, and had to be tube-fed. One case of general paralysis was talkative and expansive, with considerable irritability. *Irritability* in some degree or another was present in practically all of the cases.

Some of the histories indicated a tendency, as time went on, to note the patient's progress in a rather formal stereotyped way, describing the general routine and a casual impression of the mood, with very little, if any, comment as to content or trends. We emphasize this here, not because for years it has been a generally accepted principle that one must study the trends of the patient, but to focus attention upon this point—that in our group of suicides *the trend expressed is by far the most important single factor available to properly understand and evaluate the reaction.*

The trends expressed by these patients are summarized briefly:

CASE No. 1. He complained of insomnia, of pressure and constriction in his chest; he was short of breath; he was afraid to eat as his bowels were stopped. He did things mechanically without feeling. No other case like his existed. It was going to last forever. "I will get worse and lose control of myself." He was apprehensive of "something unknown" overpowering him. He felt "grouchy" and therefore did not care to speak to others as he might "say unpleasant things."

CASE No. 2. The patient accused himself of his wife's death (suicide). He neglected her by staying out late playing cards. (Was sexually impotent; wife very passionate and had a lover). He claimed he could feel no physical pain; that once he had driven a nail into his brain and he needed a pair of pliers to pull it out. He stuck a tie-pin about an inch into his thigh to show the physician how dead his body was; he talked of having tasted cyanide of potassium which was now slowly destroying his brain; he pounded his head against a grating (resulting in lacerations); he talked of being worthless and said he was abnormal "in every possible way."

CASE No. 3. He complained of being very tired. He spoke of a "horror beyond belief;" of considerable suffering. His body felt queer, cold and numb. He had a gnawing pain in his hips. He could not keep his legs crossed. His hands and feet would quickly go to sleep. He spoke of a wish to be unconscious; to be confused so as not to appreciate a terrible, unex-

plainable physical and mental weakness. He was losing all power in his legs. He knew that he would not get well.

CASE No. 4. He had lead poisoning (syphilis). His waist was contracting; his joints were cracking. Unpleasant insinuations were passed about him; he had erections at night with disagreeable thoughts. He said that sensations were put in him by some unknown power, and, in turn, if he touches his sister *she* would lose control of herself and have the same sensations. (He does not describe them.) "I will go off the handle. I'll have to be sent to Hall 7 (for acutely ill patients). A voice says, 'Don't forget to speak about hanging yourself'."

CASE No. 5. He has "all sorts of diseases." His neck and spine became stiff; he is dizzy; his eyes "click;" his heart moves about; perhaps it is in his abdomen. He says, "If I could only sleep—I'll go crazy"—"My vitality seems to be gone."

CASE No. 6. He has every disease known, and speaks of leukemia, diabetes, and other chronic conditions. He is dizzy; he is weak and has "heavy feelings." He is unable to sleep and says, "A few days more of this and I'll be crazy." He was constantly expressing the fear of losing his mind.

CASE No. 7. He likewise believed that something terrible was to happen to him if he could not sleep. His bowels do not move; he feels distended (examination negative). If he keeps on eating "terrible things" will happen. He is apprehensive that his teeth will fall out. Everyone is against him; the doctors know it but pretend ignorance. He wants protection as he is going to be beaten. He is going to be arrested. He has lost all his money (not so).

CASE No. 8. He is losing his mind. He will soon be mad—"mad" being a state in which he will need care on a hall for acutely ill patients where "one screams and breaks furniture." He has a "severe and incurable brain disease." He has lost all his money. He worries about his impotency. He shouts, "I can't eat—I can't sleep—my God! My brain is affected. I'll never recover!"

CASE No. 9. No trend was ever really obtained. For months he had occasional "dizzy" spells or "weak" spells precipitated by eye trouble, ear trouble, blood pressure, or gastro-intestinal upsets. In a previous attack "complained of a peculiar feeling in his head" and had talked of "rotten blood" (meaning hereditary stigma). He was always self-depreciatory; dreaded meeting people. He actually had syphilis and worried much about this.

CASE No. 10. He believed that he had syphilis (no). He said that his spine was getting smaller, and that his spine was crooked. He had pains in nearly every part of his body. He thought his fiancee was to sue him for breach of promise and would blackmail him. He said his fiancee often turned very white when she approached him; that she had poison in a handkerchief which affected her in this way. His great worry concerned the belief that he was losing his mind.

CASE No. 11. He was very hypochondriacal; believed that he had tuberculosis; believed that he was to lose his voice. He attributes this condition to the "terrible state of his bowels." He was apprehensive that he would soon be sent to a hall "raving and ranting." He was suspicious of everyone about him. He says, "I am continually watched. If I stay here much longer I will go absolutely crazy." He feels, however, if he leaves here that he is to be arrested. People on the hall are trying to get him to confess to something. He resists food being "crammed" into him, when his "eliminative apparatus" is out of order. Later he complained of numbness in his back, face, and head; also pain in the lumbo-sacral region of the back. He also said, "Some people feel weak in the stomach, but when I am nervous I feel all tense sexually. At the base of my penis there is a contracting and relaxing—a sort of nervous reflex that drives me wild." At intervals there were periods of concern about sleeplessness, and usually when he awoke throughout the night he cried but gave no reason.

CASE No. 12. She was apprehensive about a nervous breakdown because she could not sleep. She soon developed delusions; believed her room was wired, her ears were ringing, her head was throbbing. She thought she was hypnotized; that an instrument was in her mattress to record her pulse, and all of her complexes and inhibitions. Later when very excited and assaultive she said a medium was controlling her. Later she said, "When you are uncontrolled you've got to thrash about to get it out of your system. The last that you have goes out your toe-nails and finger-nails. I feel it going out of mine!" Dope was put on her; poisoned milk fed her. She said, "My skin is exuding poison!" She speaks of being "over-sexed." She calls the physician "God." Reacting to tube-feeding she shouts, "They put a tube down my esophagus, a man's tube, not a woman's tube—lust!—lust!" Later, "I can find my way to liberty through death!" Her delusions subsided as she became quieter. She then complained of her heart hurting. She had a great many minor complaints. She said, "I'm not worth a dime. I'll never be fit for anything again."

CASE No. 13. She believed people were watching and talking about her.

She wanted to prove to the authorities that she was innocent. She said, "I have always been a good woman. I have not done the things they say I have." She wrote to her mother, "— what is said about me, it is not true—I have not done anything to hurt you or anyone—I *do* care for you and father very much." She complained of constipation and of a pain on the top of her head. She said, "Just look at my body; it will never get back as it was." Later, "I have insomnia; I never sleep at all." Later when tubefed, "I can't eat—I can't—I can't—Oh! why am I tortured!"

CASE No. 14. She was worried about insomnia and knew she would soon be sent to a State institution. Before admission she said, "I am absolutely gone. There is nothing now but madness or suicide!" Later she talked of "madness and horror." She constantly referred to "this horror of losing my mind;" even the death of her son and the serious illness of two others meant nothing compared to "this terrible thing." She said, "I feel that I am going completely mad. I'm so tense—I'd a thousand times rather be dead than go through all of this agony." She talked of being an imbecile, the worst case in the hospital, not fit to associate with anyone. She believed her body had an offensive odor; that she was "rotten all through." She complained of a severe pain almost constant in her neck "like burning hot wires." She had dizzy feelings, tight feelings, and no gesture seemed natural. She wondered when she became "mad" if this "madness" would take the form of getting even with her husband.

CASE No. 15. She said her whole body was infected; that she had no intestines; that she was going blind. She said her gall bladder had ruptured; she was burning up. She thought she was "going insane;" she thought she was soon to die but expressed a strong desire to live. She was apprehensive about an operation that might be performed upon her. She was fearful of cancer. She was soon "going wild" or would be "raving." Her wonderful brain was becoming soft; she would soon be a "wild lunatic." She said, "It's too late. My eyes are burning out of my head. My body is burning up—I suffer with heat through my body." Later, "I am getting common. I'm going like a drunken woman." She thought she was to be tortured by being placed in lime and water containing acids. She constantly predicted her death; someone was to kill her.

CASE No. 16. She believed she caused her husband's death; that she was followed and watched by detectives. Strange men made obscene motions toward her. She thought she was considered lewd; that she had ruined her whole family. She felt that something terrible was going to happen. She worried over the delicate health of her younger son (she never wanted

children). She should not have had children and was unable to measure up to motherhood. Her husband was too sensual; she was frigid. She is not fit to associate with anyone. Her husband does not like her; he put her away to get rid of her. She is "filthy"—both physically and mentally. No one wants to be near her. She is to blame for other patients being in the hospital. Her brain is weak.

CASE No. 17. She talked of perverted and prostitution habits. There is much talk of suicide. She said, "Even in my various attempts I've thought of being in the center of the stage." She admits homosexual drives. She is "disgusted with life." Even when she was in high school she thought of suicide. She was jealous of her younger attractive sister, and she hated her father. Eight months after leaving the hospital she was working and wrote, . . . "I told you so!" (meaning she was now successful) but she admits periods of irritability and recurrent suicidal thoughts. In a final suicidal note to a woman physician she wrote, "It's awfully melodramatic to write farewell notes, isn't it? Well, anyway, this is one. You see I had it all planned to go back to the university this fall, earn my way, etc., and then the more I thought about it the more I knew I couldn't go through with it. Study, work, look for a room, meet new people, new circumstances; so, in my usual selfish way, I up and left, and now I've been running around for two weeks and have almost gotten away from reality. I mean I can pretend most of the time to myself that all that was ages ago. So now I'm going to try it again—suicide, I mean, although I can't quite make up my mind to take the same way—jumping out of a twenty-story window. Maybe I don't really want to die, but I don't know of any way of going on living that wouldn't involve an awful mess of trouble, and I hope death isn't—although, if there is a hell, I'll be awfully fooled. About mother and Mary—well, I'm just too selfish to care—and, of course, this note to you is a dramatic gesture—Love—Anna."

CASE No. 18. She is self-depreciatory. She is old, ugly, and unworthy of anyone's attention—"my clothes do not fit." She felt she was an outstanding caricature to be ridiculed by everyone. She complained of being over-fed, and of becoming unhealthily fat. She had headaches and felt dizzy. She had a fear of menstruation and smothering sensations.

CASE No. 19. She lost much sleep; had shooting pains everywhere. She thought she had cancer. While under analysis she thought that the lay analyst was hypnotizing her. She wanted frank homosexual relations. In the hospital she wanted drugs to sleep; then she refused them saying it was a method of escape. She thought her case was important for scientific

study. She said, "To face myself now would be a miracle because I feel I was partly killed." (Why?) "Men kill the thing they love. All men love the thing they kill." She talked of being "insane" but wished to get back "to consciousness." She became suddenly excited and exclaimed, "I want someone to kill me. I am ready to face reality!" Later she thought she had killed her former physician (a woman). She also had an idea that four or five people were dead (all women). She wanted to know which side of her was most essential—the masculine or feminine. She expected imprisonment for life. Later she said, "I seem to feel more guilty when asleep. I have very bad dreams. Last night I saw the coils of a boa-constrictor." She believed, however, that her constant loss of sleep would cause an "acute outbreak."

CASE No. 20. While in a manic state she inserted a match wrapped in gauze in her vagina. She said, "Commit suicide—commit suicide—I am crazy—my whole family is crazy." She also showed antagonism toward her husband while in an elated state. She talked of being blinded—of being her husband's son; of approaching marriage and of being held for ransom. She said she was to be electrocuted.

CASE No. 21. She said, "I feel like jumping out of a window;" said her fiance had tuberculosis and that he had shot himself. While in an excited state she feared food was being doped; she suddenly became assaultive toward the nurses; antagonistic toward her mother. "I haven't a bad character—this bad house." Tube-feeding meant rats down the tube. Later when comfortable she said she would like to marry to get away from her "solicitous mother."

CASE No. 22. She loved her husband but was afraid he would leave her. She knew her illness was similar to that of a man whom she had read about who committed suicide because of insomnia. She had pain in her hips. She was constipated and made frequent requests for a hot water bottle to place upon her abdomen for this.

CASE No. 23. She said, "My bowels are tied up and I feel as if I can't make water." She claimed that she was all filled up and begged for castor oil. She said she should be placed with criminals; she was accused of being pregnant and of homosexuality. Her body is changing. The hair is increasing on her body. She cannot live as her bowels do not move. She is apprehensive that something has appened to her mother. She said, "My nerves ache me so. I'm so sleepless—will I be sent to Hall 7?" (for acutely ill patients). She has pains in her arms and joints. She is suspected of corrupting others. Her whole body was changed. She has only a short time

to live. Her bowels never move—she never sleeps. She said, "I want to go to mother."

CASE No. 24. She said that poison was put in her food by the doctor that operated on her. She said, "Perform an operation to hasten the development of a penis and a growth of hair so that I will become a man." She said she needed coitus to become great. Later she said, "Before I stand much more of this I will commit suicide with a knife or a gun. I would never take poison—that's too nasty!" Later, "Years ago things could have been made all right. Now it is too late." She said the masculine and feminine sides of her wanted to exist at the same time. After she had become excited and disturbed she said, "There is nothing wrong with my mind! It's too late. The male sexual organs are slowly developing. I will soon be a whole man and I'll be a rotten one at that. I'm going to live with women!"

CASE No. 25. She was apprehensive; felt she had made "some terrible mistake." She said, "My mind is gone; my nerves are gone; I have no lungs; no bowel movements." She said her food would not digest. There were snakes in her bedroom; bugs in her nose and mouth; she felt them creeping under her skin; there was poison in her throat. Her spine was gone. She said she could only breathe by expectorating saliva constantly (which she did). "There is no one like me in the whole world." She wished she could die, but she is not human as she cannot contract a fatal illness. She has had no spine since she fell off a couch.

DISCUSSION

One of the outstanding features then of these cases is the hypochondriacal trend—usually very severe. We may speak of it as a narcissistic regression. In other words energy (libido) that ordinarily finds an outlet or satisfaction in sublimation and external objectivity returns to the individual.

If deterioration has not taken place with resultant amelioration of the inner tension (or strivings) the organism cannot absorb or dissipate this force quietly. Part of the compromise is an investment of various parts of the body with this energy.

We cannot now discuss in detail the significance of this regression but it is appropriate to suggest that the whole reaction is out of keeping with any conscious motivation. The regressive nature of the delusional material, together with the omnipotent value

given to thought by these patients, shows that the long-repressed infantile instinctive part of the individual comes to the fore in these trends.

Recognizing then that the individual has become the actual object of feelings that should be transmitted to others, we may note that aggression which might be lived out upon the external world (or another person) is blocked; it is turned in upon oneself. Hints of the ruthlessness and primitive nature of this sadistic aggression are particularly noted in several of these patients. Case No. 10, for instance, believed that his fiancee turned very white when she approached him; that poison on her handkerchief affected her in this way. Case No. 14 wondered if "going mad" meant getting even with her husband. Case No. 16 was unduly anxious about the health of her son (whom she did not want). Case No. 19 believed that she had killed her former physician and several other women. Case No. 21 thought that her fiance had tuberculosis and later that he had shot himself. Case No. 23 believed that something had happened to her mother. It is only indirectly, as these examples demonstrate, that the underlying infantile tendencies come to the surface, but the veiled death wish is apparent.

Furthermore, the dread of "losing my mind"! the horror of "going crazy!" the oft-expressed fear of being sent to a "disturbed hall," and many other varying expressions of the same thing all indicate the tremendous apprehension that this aggression will break through. To become "insane" means to become "wild," primitive, free to express without inhibitions the infantile will of the organism. A potential suicide gave these associations; "losing my mind—not being responsible—fear of becoming violent—like the insane—fear or feeling of horror as if I had actually murdered someone!" In the same way one might interpret the agonizing fear of not sleeping as a forerunner of the above. Lack of sleep in itself is not so important; it is the patient's fear about not sleeping. How frequently we hear, "Oh, doctor, if I don't sleep soon I'll lose my mind!" or "Please, can't you give me something, doctor, before it's too late?"

It makes little difference that the dreaded thing does not become an actuality, although, paradoxically, as already indicated, the

actual suicide successfully lives out this aggression upon himself. Some years ago Clark in discussing the psychology of suicide and emphasizing the infantile forces, said, "No one kills himself unless he has first wished to kill another, or at least wished the death of someone." The patient, through identification, not only becomes the object of such forces but must also be punished for the existence of these forces.

The sense of guilt is another important feature expressed in the trend and may be in keeping with the above. It is acknowledged by derogatory and self-deprecative ideas, or denied by projection. Someone is trying to get a confession from this one, another is to be sent to jail, another writes to her mother, "Do not believe it—it is not true!" Various tortures were anticipated by others. We may mention here again that amelioration of the sense of guilt or expiation for the "unknown crime" is often expressed in the suicidal drive. In keeping with this is the observation that certain patients following an unsuccessful attempt to die may then be remorseful for the act, and be in considerably better spirits for some time thereafter. Temporarily they have satisfied or lived out this sense of guilt.

We shall now pass on to more objective observations. *Every case* showed definite evidence of suicidal tendencies. One-half of the cases had made one or more half-hearted or serious attempts. For instance, one man had taken four bichloride tablets two weeks before admission. Five days after admission he had petechial hemorrhages about his eyes, also some congested areas about the mucous membrane of the throat, and two small ecchymotic spots on the outside of his neck. A notation was made in his record that such findings were unexplainable, but probably due to throat infection. No one would doubt now that these findings were evidence of an unsuccessful attempt at strangulation. One woman had taken six grains of morphine. After recovery she jumped from a third story window and broke her leg. One man in an attack 28 years before had jumped into the Pacific Ocean. Before he came to us in his second attack he was rescued from the Atlantic Ocean. In the hospital he made numerous suicidal attempts including choking with towels and sheets, swallowing glass and pins, and stuffing

things into his mouth. The cases in which there was no record of attempts at suicide talked occasionally or frequently about it but one gained the impression from the notes in the histories that few were regarded seriously as suicidal.

Concerning the methods used by suicides, generally speaking, one finds well-defined patterns. Men usually employ active means, such as shooting and hanging. Women use more passive measures, such as asphyxiation and poison. However, there is usually a current vogue or fashion—probably suggestibility has something to do with this. Some years ago, following the dramatization of a bichloride death in the south many suicides occurred in the same way, and the newspapers finally refused to print the name “bichloride of mercury.” In the last year or so suicide by jumping from high places has been unusually prevalent and one person undoubtedly influences another. More recently domestic gas and the exhaust gas from automobiles have been commonly used. Some deaths suggest a strong melodramatic and exhibitionistic component in the personalities of these people such as our case of a 19-year-old girl who left a farewell note. Dynamically, each method undoubtedly has an explanation in the psychological history of the individual.

Restrictions within a hospital limit the methods available, and most hospital suicides are successful by hanging. Cords, scarfs, handkerchiefs, belts, neckties, and various articles of linen are used. Of the 14 cases occurring in the hospital, 8 men and 2 women died of asphyxiation by hanging; 2 men and 1 woman died of hemorrhage from self-inflicted wounds; 1 man drowned himself in the Sound while visiting at a shore cottage. Of the 11 cases outside the hospital (all women) 4 died of hanging, 2 by jumping from high places, 2 by drowning, 2 by poisoning (veronal and illuminating gas), and 1 by burning herself to death.

An interesting point noted in grouping the cases actually successful in the hospital is the approximate time of the accident. Fifty per cent had chosen a “zero hour” somewhere between 5 a. m. and 7 a. m. Five others succeeded in the afternoon, another at 11 a. m. and the final one early in the evening. The significance of these hours will be commented upon shortly.

The following table reveals the methods used to commit suicide by the resident patients, together with the approximate hour.

METHOD OF COMMITTING SUICIDE		
Men	Method	Time
1. Asphyxiation	By twisted cord about neck	6-7 a. m.
2. Asphyxiation	By handkerchief from hook in clothes closet	6-6:30 a. m.
3. Asphyxiation	By scarf about neck attached to bed-post	6-6:30 a. m.
4. Asphyxiation	By trouser belt attached to flush tank bracket in toilet	4 p. m.
5. Asphyxiation	By two neckties attached to plumbing fixtures in toilet	5 p. m.
6. Asphyxiation	By curtain about throat attached to window sash	6-6:30 a. m.
7. Asphyxiation	By bathrobe cord attached to tree	5-6 a. m.
8. Hemorrhage	Cut left carotid with razor	2:30 p. m.
9. Hemorrhage	Cut femoral and radial arteries with piece of glass (tumbler)	5 a. m.
10. Drowning	Jumped into Long Island Sound	early a. m.
11. Asphyxiation	By trouser belt attached to top of door jam	11 a. m.
Women		
1. Hemorrhage	By cutting throat with piece of glass (window)	3 p. m.
2. Asphyxiation	By three hankerchiefs attached to hinge of closet door	4 p. m.
3. Asphyxiation	By sheet attached to window guard	9 p. m.

It is seen by the above that 11 patients died of asphyxiation (9 by actual hanging, 1 by drowning, and 1 by pressure of a twisted cord about his throat). The remaining 3 died by more violent means; 2 men and 1 woman cut themselves so severely that the resulting hemorrhages caused their deaths.

SUMMARY

In our concluding remarks we wish to make some comments of practical interest.

The prevention of suicide in a hospital is one of our constant and ever-alive problems. No matter how careful one may be a person intent on suicide may, at one time or another, seriously injure himself or actually be successful in killing himself. We cannot com-

pletely restrict every patient of whom we are suspicious. We could not give to them our maximum treatment if we did so. Well, one asks, what can we do?

We believe that the first consideration is to know the patient. This does not mean getting an anamnesis and doing a mental status alone. These procedures are helpful but one should always strive to get a workable rapport. It is usually accepted that in analysis, once a satisfactory transference is obtained, the analyst does not worry unduly about the patient's actions. This may be a questionable standard to accept, but in our opinion a patient with a strong positive transference will rarely, if ever, commit suicide. But what about those who cannot develop a transference? Perhaps again in an analytic sense psychotic patients do not develop a transference. However, experience has shown that many psychotics come to believe in and accept the physician almost as intensely as a non-psychotic patient. It is therefore quite worthwhile to recognize that the frequent contact of the physician with his patient in the hospital ordinarily becomes an important deterrent so far as suicide is concerned.

We refer again to the importance of getting the patient's trend, and to its significance as already emphasized. This is the potentially suicidal patient who requires very close supervision, the one whom the wise doctor visits often and the one whom the capable nurse watches tactfully but with extreme care.

As we have noted, all of the 25 cases at one time or another talked of suicide, or actually had made half-hearted or serious attempts. We are too prone to neglect such findings and they should be constantly borne in mind in our estimate of a patient's potentialities, especially in the type mentioned.

In a number of patients immediate precipitating factors seemed apparent. One man who was visited by his two sons a week before he committed suicide had not seen them for over two years. Two others committed suicide following plans discussed for their transfer to other halls. One man, who had written home of his terrible fear that his teeth were to be "yanked" out, killed himself ten days after a brief line in the history recorded that his teeth had been removed. Still another was successful when he was informed

that his fiancee, who had promised to marry him when he became well, had left for home, after remaining for some months in the east to be near him. These apparently trivial things mean something important psychologically to the sick individual and we must try and understand them.

One might ask if these suicides could have been prevented. Was there a weak link in the chain of observation and supervision? It is difficult to be certain. In studying these cases in retrospect it seems easy enough to recognize what should or should not have been done. In other words, one may see in the longitudinal study of each patient certain steps which should have been taken which undoubtedly would have prevented an accident at that particular time. Two women who committed suicide in the hospital some years ago are examples. One left her dormitory bed while the four nurses on the hall were placing a noisy and upset patient in a therapeutic pack. She went to a vacant room and hung herself by means of a sheet attached to a window grating. The noisy patient successfully prevented the nurses hearing her, but the mistake was made in having *all* of the nurses busy giving the pack, leaving the rest of the hall without supervision, for the time being. Having a vacant room unlocked could also be criticized. A second woman's room was noticed as being empty by the nurse's casual inspection from the doorway. Further investigation was not made at the time as the patient was believed to have been off the hall with an outside group. Later she was discovered behind the corner of a wardrobe suspended by a loop of three small handkerchiefs attached to the hinge of the door.

We could cite other examples indicating clearly enough that some of the accidents should have been avoided, but, as already stated, it is easier to see the weak link in the chain after the break has occurred than before the mishap.

Our reference to the hour frequently chosen by our particular group of suicides is suggestive. Two factors probably enter into this. In the first place, between the hours of 5 a. m. and 7 a. m. the patient may have reached a maximum stage of desperation as a result of a sleepless night with long hours of fretful and agonizing introspection. At the same time external influences tending to

mitigate whatever resistance he has had to carrying out his desires are at their lowest level. For instance, in the case of the nurse, the associated confusion incidental to the new day's activities, the anticipation of being relieved from duty, and the actual interchange of responsibility between the night and day group undoubtedly play a part in lessening the acuity of supervision at this hour. With the exception of the man who hanged himself at 11 a. m. and the woman who died at 9 p. m. the rest of the patients succeeded in their attempts in the afternoon. What happened in the case of the woman has already been described. The man may be included in our remarks concerning the afternoon group. Every one of these patients was off schedule. In other words, they had been excused for one reason or another from the regular therapeutic activities of the hospital, including occupational classes and outdoor groups. This emphasizes sufficiently well without further discussion the importance of these daily schedules. We will add, however, that this particular type of patient is often the most difficult to encourage to accept these therapeutic activities, but experience has shown how important these schedules are for rehabilitation and recovery, apart from their safety value implied above.

It might be said at this point that there are any number of patients accepting these therapeutic aids in the hospital, who, if living outside during the acute phase of their illness, undoubtedly would have committed suicide.

Actually 11 of the patients in our group committed suicide after leaving the hospital. This brings up the extreme difficulty one has at times in convincing the relatives of such possibilities. Because a patient is rational in the sense of orientation, good memory, and a grasp on current events, the relative trusts him. Furthermore, the depressed patient, better than any other, rationalizes, pleads, and projects his difficulties so skillfully that the hospital, the other patients, and even some of the personnel become the chief causes of his immediate distress. This is often accepted literally by his friends and relatives, who then remove the patient from the hospital, with resultant tragedy and sorrow.

Three of these 11 patients were not discharged against advice. Statistically they belonged undoubtedly to the circular manic-

depressive group, and they seemed comfortable when they left the hospital. A succeeding depression led them to suicide. Ordinarily the depressed case of manic-depressive illness does not have an energetic drive toward suicide, although the wish to die is seldom absent. In the hospital under moderate supervision and daily activities such patients do not cause us too great concern. However, the same patient, in an outside environment, may suddenly commit suicide if an appropriate opportunity presents itself, as, standing by an open window in a high building, being near a body of water, having access to drugs, and the like. Again, because this type of patient may appear so rational, it is difficult to convince the friends and relatives, and even the attending physician, that it is unwise to care for the individual at home.

CONCLUSIONS

In conclusion we would summarize briefly the essential features consistently present in this group of suicides:

- (1) Severe *hypochondriacal* and nihilistic ideas, with veiled death wishes in the trend.
- (2) *Insomnia*; not the actual sleeplessness itself but the apprehension and agony concerning its possible effects.
- (3) Persistent belief in *losing control of oneself*, of "going insane," and analogous ideas.
- (4) Sense of guilt with persistent belief and concern about punishment, especially by *torture* of one kind or another.
- (5) Evidence of *aggressiveness* as indicated by surly, impudent, and irritable attitudes together with assaultive tendencies.

As corollary danger signs we would note:

- (1) Sudden improvement in a depressed, hopeless, and perhaps delusional patient.
- (2) History of previous half-hearted or serious attempts.

The question of hallucinations as a factor in suicide, so far as our cases are concerned, seems less important than other studies indicate. It is stated that, particularly in dementia præcox cases, the impulse to suicide may be a direct command of a hallucinatory na-

ture. The influence of this was shown in the case of one of our patients who heard a voice say (as she was talking to her physician) "Don't forget to speak about hanging yourself!"

This review is based upon hospital cases, and the long period of years covered to include such a group is filled with the histories of those who tried and did not succeed. To us in psychiatric hospitals aborted and frustrated attempts at suicide are almost a daily occurrence.

One wonders if the conclusions which we have drawn from this experience may be of value, not only to us in the hospitals, but to the physician outside of the hospital. Generally speaking, it would seem that something could be done to lower the suicidal death rate. The importance of educating the family physician, as well as the general public, to recognize the point at which morbid thoughts and reactions indicate danger is without argument. Certainly within the hospital some of the points which we have emphasized may be of value.

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A FAMILY HISTORY OF HUNTINGTON'S CHOREA

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From the time Huntington first described the symptomology of a chorea to which his name was given the hereditary features of the disease were recognized. Earlier writers had described the condition but stress had not been placed on the heredity. From the studies of Davenport and others it appears that although the disease is not rare many of the cases can be traced as occurring in a comparatively few families.

The history of a family where this type of chorea has been found in four generations has been compiled during the past 20 years from various sources. Something is known of five generations of the family but the last generation is still too young to show evidence of this malady. Fifteen known cases of the disease occurring in four generations have been found. One case in the first generation, five in the second, five in the third, and four in the fourth generation. Seven of the patients were men and eight women. The disease was transmitted in both the male and female line. The ages of onset as determined by the appearance of the choreic movements varied from 26 to 45 but aside from these extremes in ages in 6 cases the onset was from 33 to 35 years. In 7 cases the exact age of onset was not determined. One case of chorea occurred in childhood but this was not considered as of the Huntington type.

Details of the symptoms in the individual patients is not here recorded.

The accompanying chart shows this family. The numbers above the circles correspond to the explanatory text.

FIRST GENERATION

1. Male case of Huntington's chorea, details unknown.

SECOND GENERATION

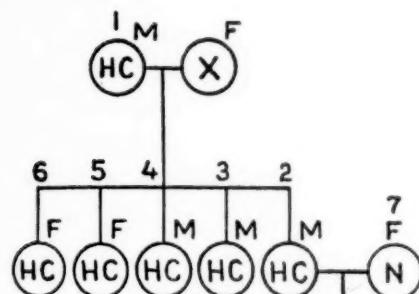
2. Male case of Huntington's chorea at age of 45. Married a woman described as normal. He died between the ages of 60 and 65 of apoplexy.

3. Male case of Huntington's chorea from 35 to 50 when he died.
4. Male case of Huntington's chorea from 35 to 45 when he died.
5. Female case of Huntington's chorea. Said to have been a hospital patient for 30 years.
6. Female case of Huntington's chorea for 20 years.

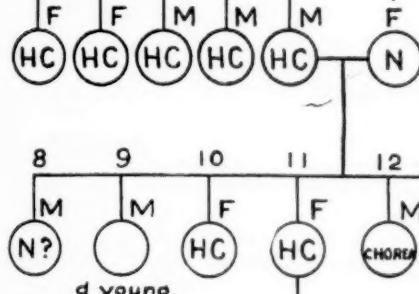
HEREDITY CHART OF HUNTINGTON'S CHOREA.

GENERATIONS

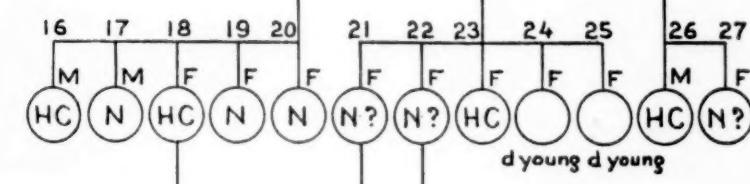
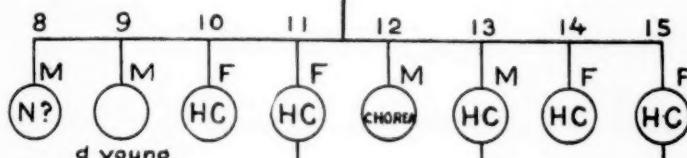
(1)



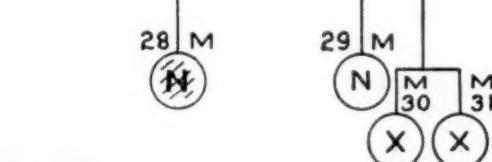
(2)



(3)



(4)



(5)

(N) Normal (X) Nervous M Male

(X) No Data (HC) Huntington's Chorea F Female

THIRD GENERATION

Children of Number 2

8. Male, eldest child, said to have been normal but history is meager.
9. Male child died in infancy.
10. Female case of Huntington's chorea, lived in Mexico.
11. Female case of Huntington's chorea at age of 34. Was 13 years in the Rochester State Hospital and died at the age of 47.
12. Male child that had what was called chorea from the ages of 5 to 15 when death occurred.
13. Male case of Huntington's chorea at age of 35 at Central Islip State Hospital.
14. Female case of Huntington's chorea at 35. Patient in the Rochester State Hospital; suicided after five months' residence in hospital.
15. Female case of Huntington's chorea in Kings Park State Hospital in 1910. Later died from the disease.

FOURTH GENERATION

Children of Number 11, a Female with Huntington's Chorea

16. Male case of Huntington's chorea, died of heart disease.
17. Male, said to be well in 1932.
18. Female case of Huntington's chorea. Patient in Gowanda State Hospital. Transferred to and died at Willard State Hospital in 1929.
19. Female, appears well in 1932.
20. Female, said to be well in 1932.

Children of Number 13, Male with Huntington's Chorea

21. Female, aged 38 in 1928 and said to be well.
22. Female, said to be well in 1928.
23. Female, case of Huntington's chorea at 33. In Neurological Institute in 1928.
24. Female, died of diphtheria at age of five.
25. Female, died of "marasmus" at age of two.

Children of Number 15, Female with Huntington's Chorea

26. Male, at age of 26 had chorea thought to be an early Huntington's in 1928.
27. Female, aged 25 in 1928 and said to be well.

FIFTH GENERATION

Child of Number 18, Female, with Huntington's Chorea

28. Male, incorrigible when young but later more stable.

Child of Number 21

29. Male, aged eight in 1928.

Children of Number 22

30. Male, no data.

31. Male, no data.

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LIGHT THERAPY

Photochemical and Photothermal Radiation

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Sunlight has been used in the promotion and preservation of health and in the treatment of diseases for centuries. The employment of its substitute, artificial sunlight, which can be produced and used more conveniently, is a comparatively recent procedure. Its administration can be controlled and it can be applied more advantageously in local and general disease conditions. Careful observations of the many effects of light indicate that its action cannot be fully explained on a physical basis. Experiments show that its effects in clinical medicine are of far-reaching, biological, biochemical, and physiological significance. Light is an important factor in the existence of mankind. It plays a part in the anabolic and catabolic phases of metabolism, and when used as a therapeutic agent, it checks pathological, and stimulates physiological processes. These functions of light were known before its elements and nature were understood.

The ancient Greeks and Romans used the sun's rays in the healing art. Herodotus referred to light as a means of repelling illness. The great Roman natural historian, Pliny, at the time of Christ, wrote "Sol maximum remediorum est" (The sun is the greatest of medicinal agents). Cicero, and the younger Pliny (A. D. 40-50) tell of solaria being used for sun baths in the Roman villas. Hippocrates, the father of medicine, practiced the sun cure. Celsus, a Roman medical writer of the first century, Galen, and many other early leaders of the medical profession, advocated its therapeutic value.

The modern scientific application of light can be traced to Sir Isaac Newton, the great natural philosopher. By an ingenious experiment, Newton refracted sunlight through a prism in a darkened room, producing color bands of light which he called the spectrum, and which consisted of seven colors, red, orange, yellow, green, blue, indigo and violet. He also found that if he placed another prism in these seven colors he could recondense them into

white light. From his experiments he concluded that rays of light which differ in color, differ also in refrangibility. He constructed the reflecting telescope, which was later perfected by Sir William Herschel and Lord Rossi. In 1777 to 1780 the sun's rays were used extensively in the treatment of ulcers and in conditions of mal-nutrition. In 1800 Herschel, experimenting with the spectrum, found that by moving a thermometer to and fro there was a portion, just before the red area, where nothing was visible, but where the temperature was higher. Thus the discovery of the invisible infra (before) red portion of the spectrum. A year later Ritter discovered that paper coated with silver chloride and placed beyond the violet end of the spectrum (an invisible area) rapidly turned black. Thus the discovery of the ultra (beyond) violet portion of the spectrum. In 1840 the sun's rays were extensively used in Germany in the treatment of tuberculosis. At this period the entire body surface was exposed to sunlight. In 1870 sunlight was used in the treatment of wounds received in battle. In 1873 Fenssen, who had worked for many years on the application of light in the treatment of disease, published his results. With his co-workers he showed the power invisible light exercised in promoting health. His work earned him the Nobel Prize for medicine, and his light treatment methods were adapted by the London Hospital.

HELIOTHERAPY

Sunlight is nature's source of light therapy, but to apply it advantageously, fresh pure air, and a temperature which will permit body exposure are necessary. Sunlight is not always available. It may be absent when most needed. Regularity in its application is quite impossible because it cannot be controlled like artificial light. Either excessive heat or cold is to be avoided, but a moderately low temperature has a stimulating effect.

Climate and altitude are important considerations in some cases, although high altitude is not an essential factor if sunshine and a clear atmosphere are obtainable at a low altitude. The beneficial results obtained from sunlight therapy, as emphasized by Rollier and others, indicate that the sun's rays and the atmospheric elements (other than dust, smoke and other particles foreign to pure

fresh air), combined in nature's way, are superior to artificial sunlight. The therapeutic effects, claimed centuries ago by those whose knowledge of sunlight was then confined to observations, are advocated and enthusiastically supported by present-day physiotherapists. The historic observations of the effects of sunlight on bone, joint, muscle and skin; the alleviation of pain, and the promotion of well being, are supported by modern scientific research.

Indoor sunlight treatment has been made possible by the use of ultraviolet transparent window glass, which when new and under clear atmospheric conditions and strong sunlight, will transmit ultra-violet rays. After a time it becomes solarized, but even with complete solarization, under favorable atmospheric conditions, and with complete body area exposed in the direct path of the sun's rays, sufficient ultra-violet rays pass through for therapeutic purposes. It is not considered practical for offices or school rooms.

ULTRA-VIOLET (PHOTOCHEMICAL) RADIATION

The physiological effects of light result chiefly from the photochemical action which in turn is due to the absorption of light. Constituents of living cells are mostly colorless and do not absorb visible rays, but do absorb ultra-violet rays strongly, with the result that ultra-violet irradiation has a marked effect on living cells. Small protoplasmic organisms, exposed to ultra-violet irradiation, are quickly effected by the photochemical reaction which takes place. The exact chemical reaction of ultra-violet irradiation on protoplasm, is not fully known, except that definite alterations in its chemical composition occurs.

By the use of eosin, chlorophyll, and certain aniline dyes, it is possible to sensitize living cells so that visible light will have an effect similar to ultra-violet irradiation. By the injection of eosin a mouse may be sensitized to the extent that, if exposed to daylight for a few hours, he will die, but no change will occur while he remains in darkness.

The first effect of ultra-violet irradiation on the skin is a faint sensation of warmth. This is due to the incandescence of the quartz. No redness occurs at first, but it does appear at about four to eight hours after the exposure (time varies in different

people). There is a local feeling of heat, the intensity of which depends upon the length of time of irradiation, and may vary from a slight irritation to pain. Redness, heat, and slight swelling may appear, indicating symptoms of mild inflammation. As the erythema fades, desquamation follows. If the exposure is repeated within 10 to 12 days, a second erythema does not occur, but after repeated irradiations pigmentosis of the skin results. The cutaneous ergosterol (cholesterol) of the skin is chemically modified, or activated, by the irradiation in such a way that the fat soluble vitamin D, or anti-rachitic substance, is formed. This is probably a photosynthetic action. The general texture of the skin is rapidly improved and the underlying tissues become firmed. The blood composition is improved and its reaction becomes more alkaline. Red and white cells and the hemoglobin index are increased. The inorganic salts of the blood, iron, calcium and phosphorus, are increased. The presence of vitamin D in the blood enables it to take the calcium from the foods and thus prevent rickets by protecting and promoting new growth of bone. This is a highly useful anabolic process. The blood develops a higher bactericidal power, as do all serums of the body. This increases the body's defensive mechanisms. There is a feeling of well being and an analgesic effect in painful areas.

Ultra-violet irradiation has a definite effect upon growth and development. Experiments on groups of children treated with ultra-violet irradiation and checked with untreated controls, showed decided gains in the cases treated. The anti-bodies in the system are increased, possibly due, at least in part, to the absorption of infra-red and luminous rays. Turrell advances the interesting view that irradiation causes the formation of products which bring about local hyperemia and that a reflex stimulation takes place consequent upon the excitement of afferent nerve endings by the irritant products. This reflex stimulation has effects of a most complex and far-reaching character, the nature and extent of which are as yet unknown. Kovacs explains the effect of ultra-violet irradiation as resulting from "the absorption of the destroyed albumen in the irradiated area causing a non-specific protein reaction and partly from reflex stimulation from the irradiated zone."

The solution of these problems indicate further investigations along biological and biochemical lines.

Photochemical irradiation may be employed in nearly all forms of extra pulmonary tuberculosis, and in chronic pulmonary tuberculosis of the fibrous type with low grade toxemia. High fever contra indicates its use. In respiratory disorders such as chronic bronchitis, and in persons susceptible to acute low grade respiratory infections, it exerts a curative and preventive effect. In neurasthenic conditions, debilitated and reduced physical states associated with lack of mental alertness and exhausted physical and mental conditions associated with secondary anemia, ultra-violet therapy exerts a favorable influence. Appliances are now available for the application of ultra-violet irradiation to the ear, nose, throat and other accessible areas. Many conditions in these areas act favorably to light therapy when combined with other therapeutic measures or when used alone. Wounds and other pathologic conditions in bone and muscle tissue are improved by its application. Since ultra-violet therapy is accompanied by some luminous and infra-red rays, a further reference to treatable conditions will be made under infra-red and combined therapy.

INFRA-RED (PHOTOTHERMIC) RADIATIONS

Infra-red rays consist of the near, or short, and the far, or long, rays. The former penetrate into the deep tissues and are only slightly absorbed by the skin. The latter, or long infra-red rays, are strongly absorbed by the skin and penetrate only slightly. Even a thin film of moisture on the surface of the skin will check them. All luminous sources produce considerable infra-red rays of the near or short infra-red type. They act in conjunction with the visible rays. Infra-red rays, coming from an infra-red source, are the external or long infra-red type.

For superficial therapy in children, and in neurotic cases where illumination is objectionable, infra-red rays of the longer or far type, from an infra-red source, are preferable. When deep penetration is desirable luminous light, rich in infra-red rays of the short or near variety, is preferable, especially for general heating and for conditions where much local heat is desired.

With all our appliances, no one has yet been able to use pure ultra-violet or pure infra-red rays. Selectivity is possible only to a degree. When we employ ultra-violet rays we are also using infra-red and other rays of the spectrum, and vice versa. Generators and lamps are being perfected, however, and greater selectivity may be anticipated.

The chief physical functions of infra-red and visible radiation is to generate heat, and when heat is absorbed by the tissues its energy is transformed into cellular activity which produces body heat and perspiration. The circulatory system is stimulated and the pulse rate rises in about the same proportion as it does in ordinary fever. The blood pressure is lowered. The respiratory system and kidney function are stimulated. There is dehydration, depending upon the amount of perspiration. Certain salts, as urea and nitrogenous substances, are eliminated, and the alkalinity of the blood and tissues is increased. There is a temporary loss of bodily weight, accompanied by a decided lowering of nerve tension, and a mental and physical feeling of well being. There are few therapeutic measures which will produce such a train of effects with as little inconvenience and no discomfort to the patient.

The local application of external heat is indicated in arthritis, endarteritis, neuritis, infections, boils, abscesses, sinusitis, inflammations, myositis, traumas, fractures, sprains, contusions, and other local pathological conditions, and infections which are accessible, and for which electrotherapy of this type is not contra-indicated. The general application of external heat, is indicated in extensive arthritis, arteriosclerosis, toxemias, selected cases of nephritis, and obesity. Heat, in physiological doses, is a stimulant whether used generally or locally, but is a depressant if used beyond the physiological point. Other local and general conditions indicating the use of infra-red therapy are endarteritis obliterans, mouth and throat infections, and X-ray burns. If applied at the beginning of suppuration, the process may be checked entirely. Herpes zoster and inflammatory conditions causing nerve pressure, hemorrhagic fossi, and inflammatory exudates along nerve fibers, usually respond to infra-red therapy.

COMBINED INFRA-RED AND ULTRA-VIOLET

The combined use of infra-red and ultra-violet has been recommended by Troup (London, 1930). He claims that excellent results, with complete cessation of pain, are obtained in lumbago by 20 minutes infra-red irradiation followed immediately by an erythema producing dose of ultra-violet. Ultra-violet and infra-red may be used simultaneously, or the ultra-violet immediately following the infra-red. By using the infra-red first the surface blood vessels are dilated and there is a freer absorption of the ultra-violet. If the mercury vapor (cool) lamp is used in giving ultra-violet the infra-red rays act well if administered at the same time. If the carbon lamp is used it is not so important that the infra-red should be used first, but if used it enhances the effects of the ultra-violet.

Herr claims that the biological action of ultra-violet is accelerated by the heat effects of the infra-red. The combination of these days is especially indicated in severe forms of neuritis and rheumatic conditions when the pain is intense and heat is essential. Infra-red irradiation has less beneficial effects when used immediately after ultra-violet. In such cases the infra-red application should be used to the maximum physiological point in order to get the maximum analgesic effect. Some infra-red rays penetrate deeply. The Murray-Ledicks' treatment of paralysis is based on the fact that visible red radiations have the power to stimulate joints and muscles.

PHOTOCHEMICAL RADIATION ON ENDOCRINES AND REPRODUCTIVE SYSTEM

The biological effects of light on the blood, and all substances that enter into the metabolism of the body, must naturally effect directly or indirectly every tissue in the human system, the endocrine included. The experimental studies of Sir Francis Humphris, show the direct action of ultra-violet irradiation on ductless gland activity. After treating a series of rabbits for a period of three weeks, with daily exposures of ultra-violet rays, the rabbits were killed and the weights of their endocrines compared with those of similar glands removed from a similar number of controls kept in

ordinary light. There was found to be a definite increase in the size of the glands of the irradiated animals, most of all in the parathyroids, in which the increase varied from 14.1 per cent to 50 per cent over the controls. The gonads showed the next greater increase and the other glands an increase in less proportion. Further evidence of the direct effect of ultra-violet rays on the endocrines and reproductive system has been demonstrated by the experimental work of Hughes and Payne on egg production and egg fertility.

Hess, Colebrook, Humphris, and Gerstenberger have shown that by irradiating the nursing mother the anti-ricketic potency of the milk is greatly increased. Ultra-violet irradiation during pregnancy will reduce the possibility of a ricketic off-spring and create a greater resistance to puerperal infections.

In connection with these deductions let us turn to the work of Lewis who, in his studies of six hundred hebephrenic and catatonic dementia præcox patients, found a dysfunction of the circulatory and lymphatic systems and an involvement of the endocrines. He found a histopathology in the thyroid, adrenals and gonads, a multiple glandular sclerosis and dysfunction, and a circulatory system lacking in compensatory mechanism. These observations find support in the opinions of many psychiatrists. That the endocrines can be stimulated to greater activity and more normal function in certain mental conditions, has been demonstrated by stimulating doses of X-ray irradiation over the ovarian region. In catatonic cases so treated, the stupor eased, the patients assumed a more accessible attitude, later beginning to talk, and after further treatment took food voluntarily. Photochemical and photothermic irradiations should be applied in such cases as it is now evident that deficient endocrines can be stimulated and their growth increased.

OBSERVATIONS OF THE EFFECTS OF PHOTOCHEMICAL AND PHOTOTHERMIC THERAPY

A review of 280 consecutive cases treated at the Creedmoor Division of the Brooklyn State Hospital by photochemical and photothermic therapy, or by a combination of both, shows its usefulness

in many conditions occurring among mental patients. This form of therapy may be used alone or as an adjunct to hasten recovery where prolonged convalescence exists. In the cases reviewed the majority suffered from debilitated physical and mental states with inadequate metabolism. Other conditions treated in this series included ulcers, boils, infections, neuritis, fractures, secondary anemia, rheumatic conditions, arthritis, burns, skin conditions, contractures, post-encephalitic conditions, sprains, beginning gangrene, cellulitis and herpes zoster. This list does not by any means include the number of conditions amenable to light therapy. In all of these conditions beneficial results were observed with the exception of the post-encephalitic conditions and the long standing muscle and joint contractures. In the cases showing debilitated physical states and mental inaptitudes the metabolism was decidedly improved and there was a gain of weight in most of these cases. In no case was there a loss of weight during treatment.

Light therapy does not exclude other forms of treatment, and in the cases reviewed other forms of treatment were resorted to when indicated. In addition to the more specific value derived from this form of therapy there is associated with it a psychic effect which is as important in mental cases as in persons of normal mentality. In knowing that an unusual effort is made in their behalf, patients take more interest in affairs that formerly did not impress them. They assume a more hopeful attitude, they are more easily managed on the ward and many become useful ward aides even while under treatment.

At this writing 115 patients are receiving photothermic or photochemical treatment. Twenty-six employees are receiving similar treatment. Only 2 of the 26 employees are confined to bed. The others are on duty and appointments are made by the physiotherapist so as not to conflict with their duties. The treatments are given only on the physician's prescription.

CONCLUSION

It is recognized that natural sunlight is one of nature's most important safeguards to health. This safeguard has been impaired through the convention of clothes, impure and smoky atmosphere

of cities, indoor occupations and climatic conditions. However, the knowledge which we possess and the apparatus which we have at hand places within the reach of humanity the safeguarding and healing power of sunlight which it has partially lost. Artificial light therapy is not a "cure-all" but it does promote and stimulate nature's method of healing. It may be used as an adjunct to other therapeutic measures. Its application in physical diseases is changing previous methods of treatment by replacing the prolonged use of lotions and immobilization which so often resulted in stiffness and atrophy. Light therapy exerts a chemical and biological influence and acts more in accordance with natures demands than other methods.

The effects of light therapy on the endocrine and other systems in the body, as shown by experiments noted in this paper, might well suggest its application in the treatment of selected mental cases. If abnormal mental reactions are in any way related to an endocrine system incapable of adequate functioning, such inadequacy might be overcome, or at least improved, if a systematic stimulation, to further the growth and activity of the deficient endocrines by photochemical and photothermic therapy, could be carried out.

In prescribing artificial light therapy the clinician must have a knowledge of the application and the essential benefits derived from all forms of electrotherapy. Discriminating clinical judgment must be exercised in the selection of any one form, or combination of forms, and their application to the disease to be treated. Ultra-violet and infra-red are often more effective if given concurrently.

The merits of this form of therapy, as applied in State hospital practice, are clearly indicated by the number of patients and employees constantly receiving it and the results obtained from its use. Many patients who under treatment are able to be about would otherwise be confined to bed or chair. There is still much to expect from light therapy, as its field of application is as yet only partially explored.

A correct and specific diagnosis of the condition to be treated should be arrived at by the use of all known means before institut-

ing treatment. Its application should be directed only by an experienced electro-therapeutic clinician. The prescription should be clear as to the form of treatment, the number, intensity, duration and frequency of applications. A keen, observing technician is highly essential to note the effects and report any untoward reactions due to treatment. Indications for light therapy are quite general and because of this the reasons for prescribing it should be clear in order to avoid the treatment habit.

DIATHERMY IN THE TREATMENT OF GENERAL PARALYSIS

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As early as 1887, Wagner-Jauregg had observed that following fever produced by attacks of some intercurrent disease such as typhoid fever or pneumonia, patients suffering from general paralysis frequently showed clinical improvement. These observations led to experiments with various fever producing agents and finally in 1917 resulted in his using tertian malaria. His work, observations and deductions have been a marked stimulus in the treatment of general paralysis. For the first time there seemed to be some hopes that therapeutic measures would bring about beneficial results and following the war, European and subsequently American psychiatric hospitals enthusiastically adopted this form of treatment.

Under the guidance of Dr. George H. Kirby,¹ director of the Psychiatric Institute of New York City, and his associates, inoculations with malaria were started in May, 1923.

The writer's first personal experience with malaria treatment came in November, 1925, and as treated patients were observed and improvement noted, deep thought and consideration were given the question of what actually brought about the beneficial results. Was it the high temperature? Was some antibody produced? Was it a combination of the two or were the spirochaeta pallida actually killed by some toxin produced by the malaria?

During the winter of 1926-1927, an effort to study one of these questions was made by an attempt to produce an increase of temperature in the brain by applying the electrode of a diathermy machine to the head. After a considerable amount of experimentation with nothing but negative results, the attempt was given up and in the light of subsequent work it can be well understood why no results were obtained. The machine had too limited a capacity; the electrodes were too small and the dispensation of heat by the body was not taken into consideration. In fact the idea was to produce a localized temperature in the brain much the same as we increase temperature in a joint with the idea that it could be con-

trolled and that the amount of current used could be measured in fairly definite dosage.

More recently other successful methods of bringing about artificial temperature have been used with clinical results which seem to compare favorably with those obtained by the inoculation of malaria. The technique of one such method is described by King and Cocke² in the Southern Medical Journal, Vol. 23, 1930. Neymann and Osborne³ in the Journal of the A. M. A., Vol. 96, 1931, reported on 25 cases treated by diathermy. Another method similar to the use of diathermy in the production of hyperpyrexia is described by Wilgus⁴ in Welfare Bulletin, October, 1931. Hinsie and Carpenter⁵ have used a heat-producing electrical device called the radiotherm at the Psychiatric Institute and Hospital in New York City. Mehrrens and Pouppirt⁶ have published a method of producing hyperpyrexia by the use of hot baths and include in their report the treatment of 11 cases of general paralysis.

It would seem that if satisfactory results can be obtained by the use of mechanical methods of producing fever that the disadvantages of malaria could be overcome. These disadvantages include the following:

1. The desired strain of malaria is often difficult to obtain particularly in northern sections.
2. It must be given directly from one patient to another and this may be quite difficult when the number of patients to be treated is small and when the general paralytic admission rate to the hospital is irregular.
3. There are no means of controlling the intensity and severity of the paroxysms without stopping them completely and once stopped it is usually some months before reinoculation can be effected.
4. In some the malaria, after a few febrile reactions, seem to die spontaneously and prematurely, and second inoculations rarely are successful.
5. Some patients seem to have a natural immunization to malaria so that this form of treatment can not be used.
6. Relatives sometimes object to the direct inoculation from one patient to another.

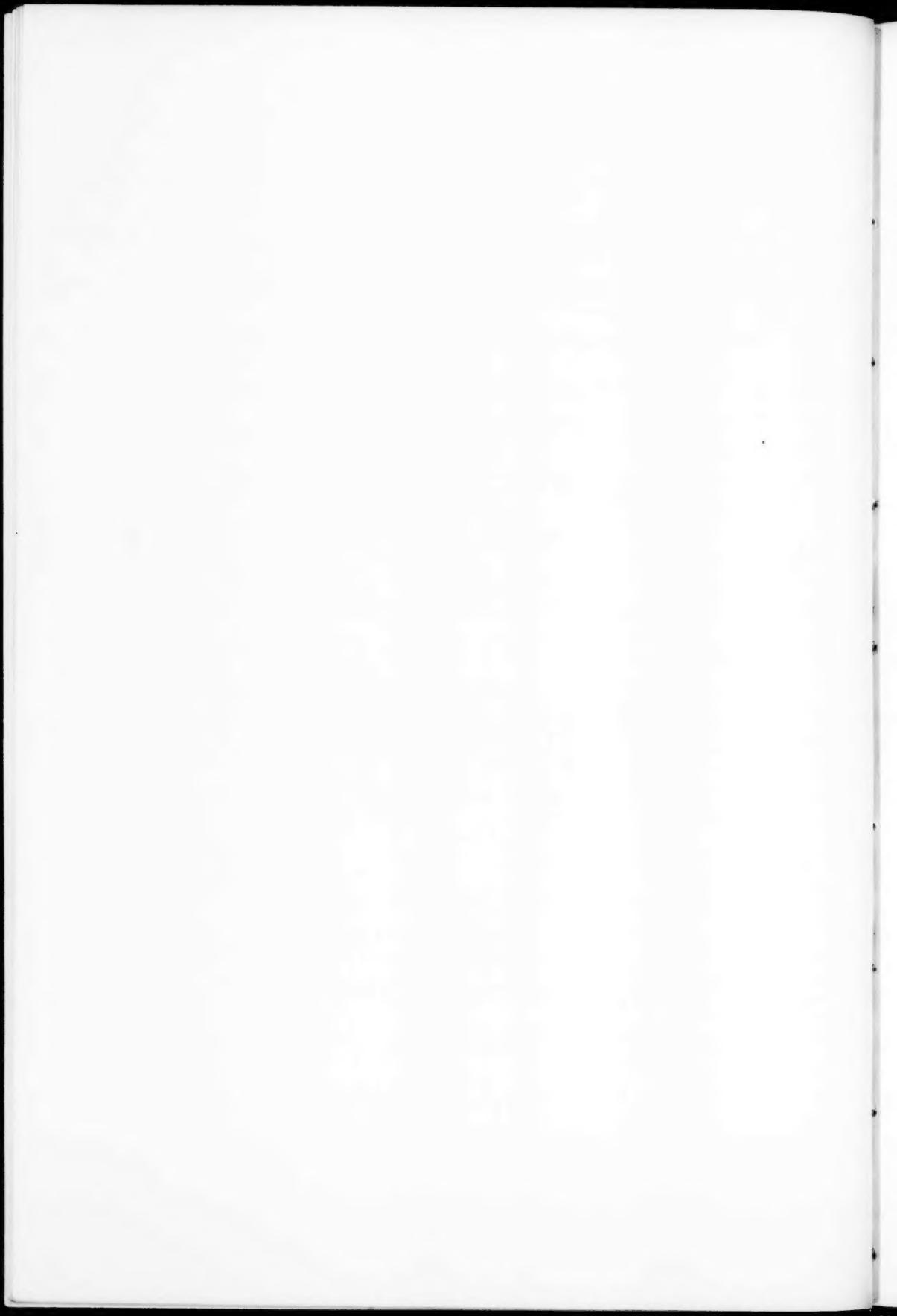


PHOTOGRAPH NO I--ELECTRODES SHOWING FENESTRATED EDGES



PHOTOGRAPH NO. II--ELECTRODES IN POSITION





7. No anti-syphilitic medication can be given during the incubation or period of paroxysm.

8. Malaria is a severe disease and by its introduction organs may, theoretically at least, be damaged.

9. There are certain contra-indications, as found in greatly debilitated patients or those suffering from severe heart or kidney disease.¹

In spite of all these, however, malaria has unquestionably proved its usefulness and against these disadvantages there are some which have been encountered in the use of diathermy and will be mentioned later.

To treat successfully general paralyses with diathermy, we must have a machine of a capacity capable of producing high milliamperage (3500 m. a. to 7500 m. a.) constantly over a period of several hours. The electrodes must be of sufficient size to deliver properly the current without burns to the patient and the patient must be insulated so that the heat will not be given off from the body too rapidly.

The diathermy machine used at this hospital is of a special construction and capable of an energy output of 8000 milliamperes of current. When in operation the machine functions with a voltage varying between 35 and 100 and a frequency of between 500 and 1500 kilocycles.

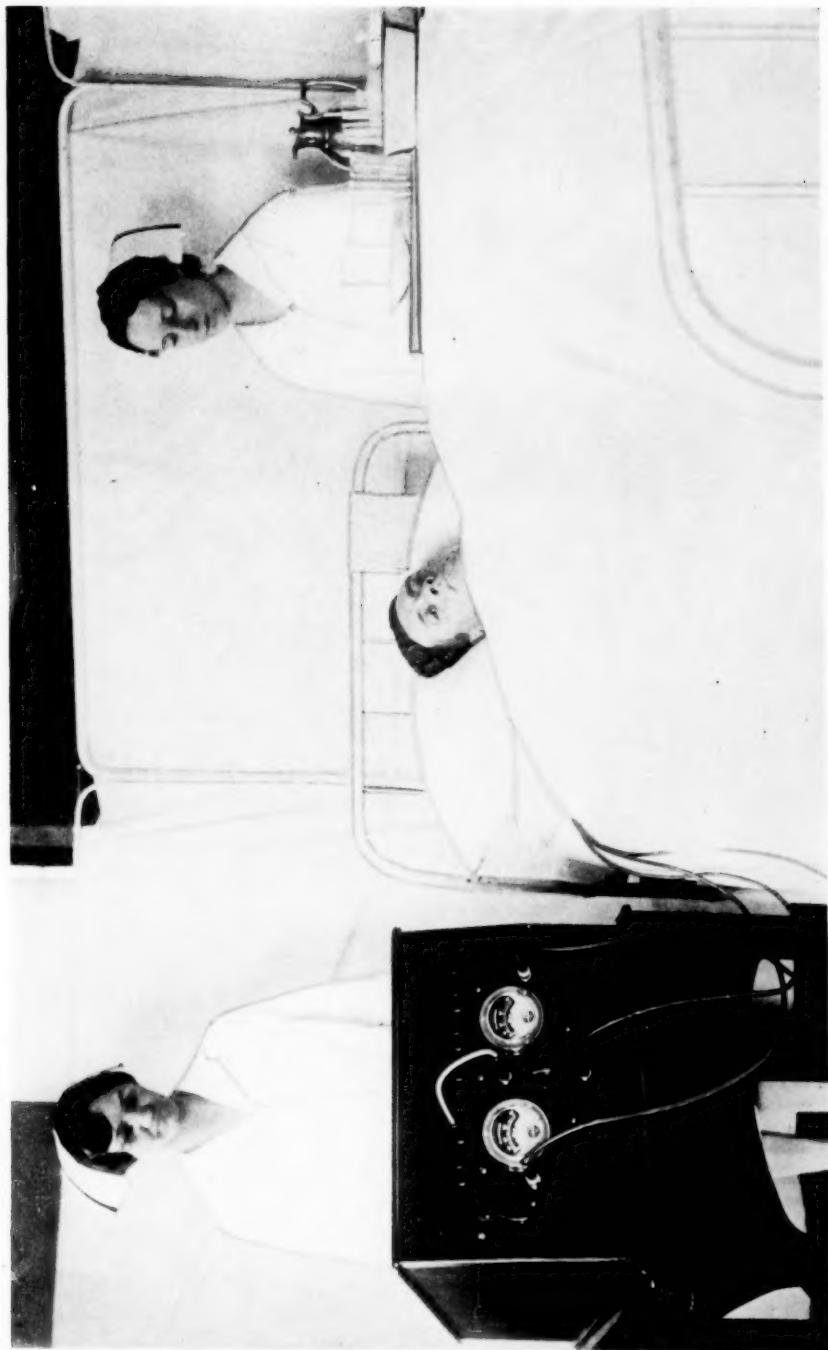
The electrodes used are manufactured by the makers of the machine and are of a flexible tinfoil mounted on rubber cushions. The edge of the electrode is fenestrated so as to give it a large amount of edge surface. This is done because it has been found that the current has a tendency to concentrate along the edges of the electrodes (see Photograph No. 1). The posterior electrode practically covers the back from the shoulders to the sacrum. The anterior electrodes are split in two parts, one for the entire chest and one for the entire abdomen (see Photograph No. 2). Each electrode is connected to the machine, but a rheostat is interposed between the machine and the chest electrode and between the machine and the abdomen electrode (see Photograph No. 3). This is done owing to the fact that as higher milliamperes are used there is a tendency for the current to be forced through the thinnest portion of the body where the resistance is least. This occurs just

above the iliac crests and, if not corrected, would cause burns. By having the anterior electrodes divided and the rheostat in circuit, the amount of current traveling through each can be controlled and is usually given in a ratio of two-thirds through the chest and one-third through the abdomen. The electrodes must be smooth, fit the contour of the body and must be held firmly to prevent slipping and maladjustment. A washable canvas jacket with strings has been found very satisfactory for this purpose (see Photograph No. 4). To insulate the patient the bed must be made up in a special manner. The mattress is covered with a rubber sheet, then a blanket, then a cotton sheet and over the feet and legs is placed a cradle to relieve the pressure caused by the weight of the covering; then a blanket crosswise is placed over the cradle so that it is entirely covered; then three blankets are spread lengthwise of the bed. Following this a rubber sheet over the entire bed and this sheet should be wide enough to tuck in under the mattress; then another blanket is spread crosswise over the cradle and again three more blankets lengthwise of the bed and finally all is covered over by a sheet or spread. All blankets should be of wool.

This careful and rather elaborate system has been found to insulate against the loss of heat very well. The pillow placed under the patient's head for comfort should, because of the profuse perspiration, be rubber covered.

At first we used an ordinary hospital bed but it was promptly found that the sagging of the springs caused the patient to be uncomfortable with resulting restlessness, which tended to displacement of the electrodes and increased the danger of burns. To overcome this a fracture board was placed under the mattress and this has eliminated much of this difficulty (see Photograph No. 4).

Before treatment the patient should evacuate the bowels and void urine. After we gave the first few treatments, it was found of advantage to administer $\frac{1}{4}$ grain of morphine, repeated if necessary, to allay the restlessness which quite regularly developed when the temperature began to rise. After giving 2200 milliamperes through the chest and back for one-half hour, the current was introduced in the abdominal electrode and gradually increased to 4500 milliamperes, two-thirds of which were given through the chest and



PHOTOGRAPH NO. III--VIEW OF MACHINE SHOWING RHEOSTAT

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PHOTOGRAPH NO. IV--CANVAS JACKET HOLDS ELECTRODES IN PLACE.
NOTE FRACTURE BOARD UNDER MATTRESS

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back and one-third through the abdomen. Temperature, pulse and respiration observations were made every fifteen minutes until the temperature reached 103 degrees Fahrenheit—thereafter every five minutes and accurate records kept. When the temperature reached 104 degrees Fahrenheit, the current was cut off, but the electrodes were left in position and the temperature maintained at 104 degrees Fahrenheit, or not higher than 105 degrees for at least two hours. This was accomplished by giving hot broths and turning on the current for a variable period, if necessary. If the temperature exceeded 105 degrees Fahrenheit, some of the covering was removed.

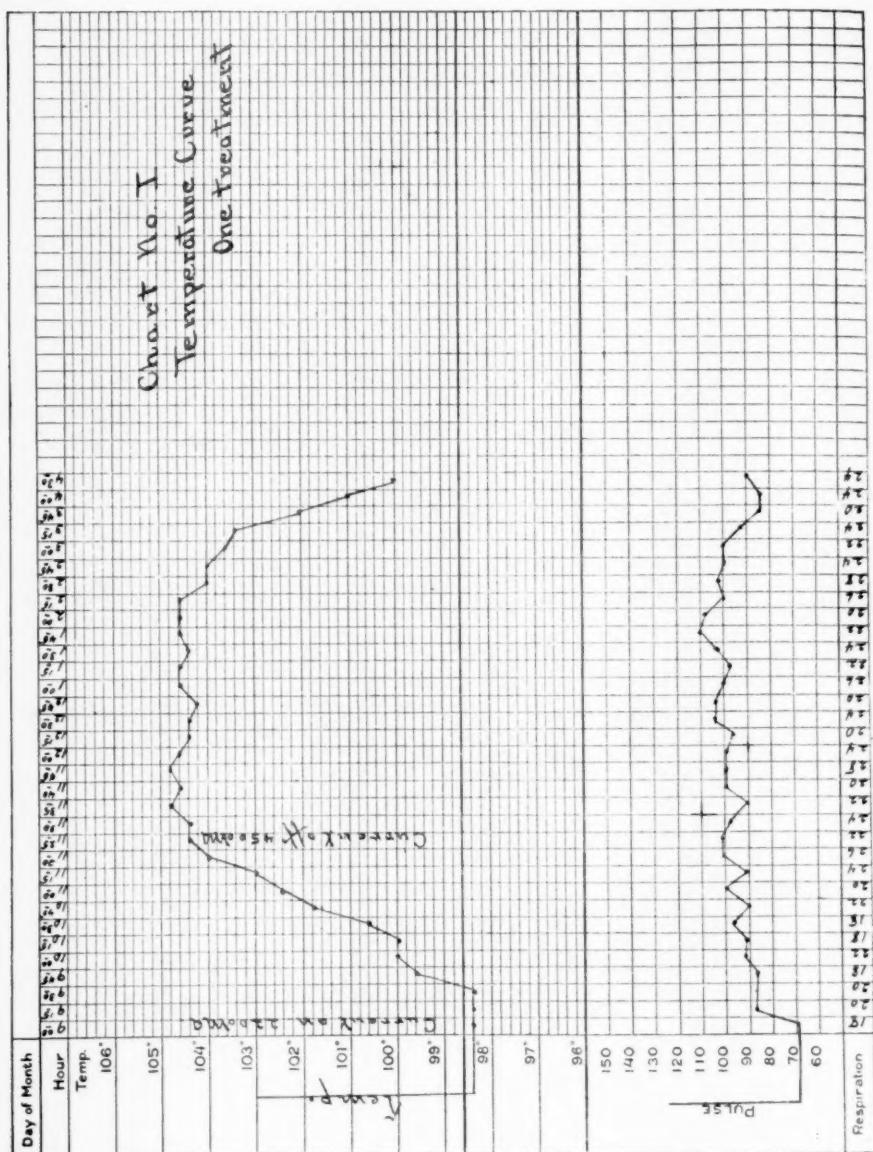
In practically every instance after the treatment had been in progress for one and a half to two hours, and the temperature had reached 102 degrees Fahrenheit, the patient's face became flushed, marked perspiration occurred, extreme restlessness developed and, in some cases, there was delirium. The patient complained of the heat and often begged to be allowed out of the covers and tried to get out of bed. With some patients it was necessary to use considerable tact, judgment and additional nursing help to prevent the patient from tearing at the electrodes.

Tepid drinks in abundance should be given during the treatment. They are greatly appreciated by the patient and tend toward his comfort.

The temperature curve produced is quite like that in malaria (see Chart No. 1). Hinsie⁵ from his studies concludes that from the standpoint of fever alone 70 hours seem to represent the optimum, and we have endeavored to follow this procedure as closely as possible.

Under my direction diathermy treatment began at the St. Lawrence State Hospital, December 11, 1931, and the number of cases treated was limited owing to lack of sufficient suitable patients and for the further reason that we wanted to continue simultaneously with malaria treatment and tryparsamide treatments as well. Our opinion was that those suitable for treatment should be free from complicating diseases such as heart or kidney involvement, not too greatly deteriorated and should be reasonably cooperative.

We appreciate that the number of cases studied has been too



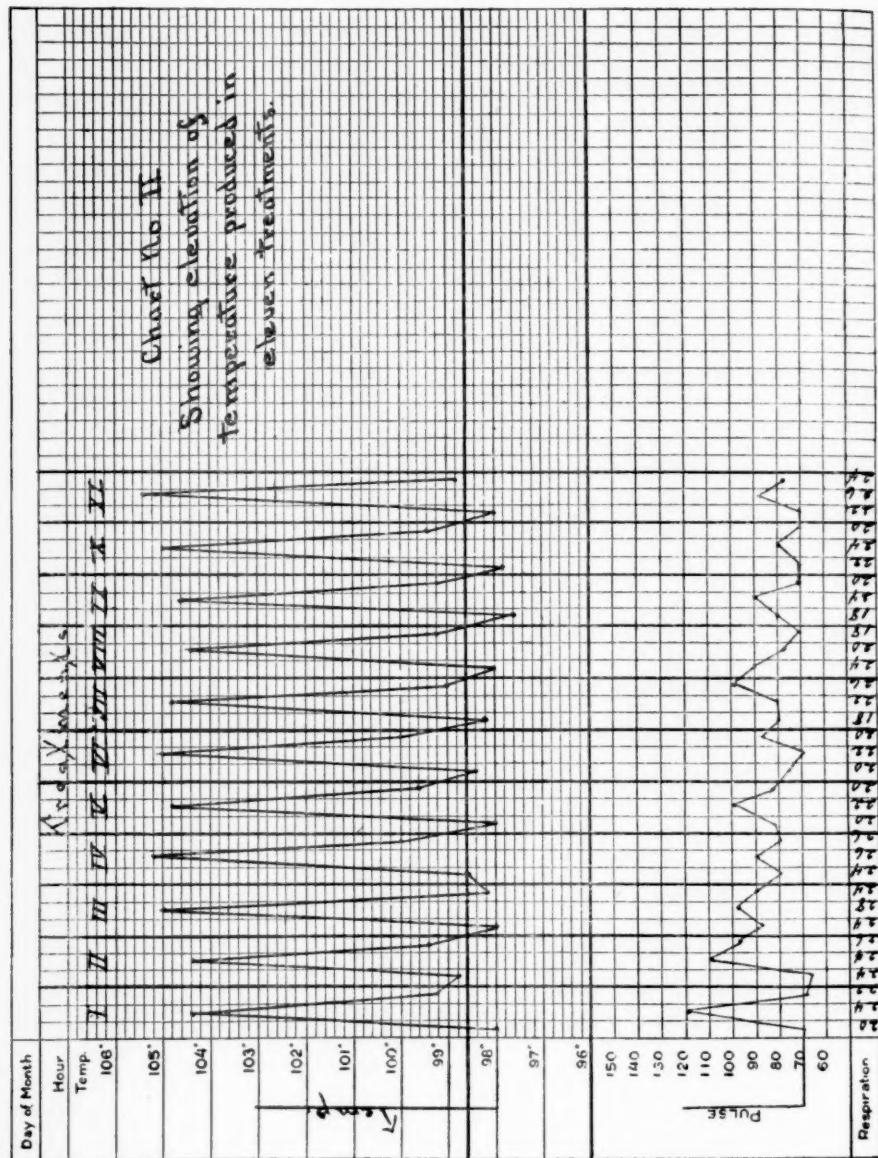
small and the time too brief to enable us to form definite conclusions; but we hope that as time goes on and our treatments continue that we will be able to offer some reliable data. Only six cases have been completed. Our findings from these seem to agree

in large part with those of others who have used diathermy over a longer period. We have been able to produce a fever which simulates that of malaria and have been able to control it. In connection with this temperature, however, there has been noted a feature with our cases that the writer has failed to find stressed in the literature; namely, the extreme discomfort of patients after the temperature rises above 102 degrees Fahrenheit. All become restless, beg that the treatment be discontinued; their facial expression indicates actual suffering.

In an interview with an appreciative and intelligent recovered patient who had first been treated with malaria and subsequently with diathermy, he most emphatically stated that he would rather have a full course of malaria than one treatment of diathermy. Here again no conclusion is offered, but taken in conjunction with the expressed feelings of our patients it surely should cause one to pay particular attention to these subjective complaints before forming a final opinion as to the relative merits of diathermy and malaria.

It is interesting to note that in general there has been a concentration phenomena in the blood picture. The white blood corpuscles and red blood corpuscles increased during each individual treatment, the red cell increase being as much as one million, and the white cells from one thousand to four thousand. With this increase the cell count shows a decrease in percentage of the lymphocytes and an increase in the percentage of polymorphonuclears. There was a loss in weight after each treatment varying from one-half pound to two pounds. This loss was almost always gained back within a day and seemed to be due to loss of water owing to profuse perspiration.

Clinically there has been a mental improvement in three of the patients. One recovered and has been able to leave the hospital and maintain himself. In three of the cases the colloidal gold curve showed a pronounced reduction. In three there was no change. Blood Wassermann and spinal fluid Wassermann were not modified; cell counts of the spinal fluid remained practically the same after treatment as before.



King and Cocke² in closing their article list the following as advantages of this form of pyretotherapy:

- “1. It is always available.
 - “2. No pathologic organism of unknown effect is injected into the patient.

"3. The frequency, duration and intensity of the febrile paroxysms are under accurate control.

"4. The desired elevation can be produced in all cases which is advantageous in cases which have immunization to malaria.

"5. Drug therapy can be used in conjunction with this form of treatment.

"6. Since the frequency, duration and intensity of the fever can be controlled, the reaction produced in each patient can be more easily standardized. This will enable us to learn the most favorable temperature curve."

From my study of the literature, I feel that we must not be too hasty in dispensing with malaria which has proved to be of so great help in the restoration of general paralytics. There will undoubtedly be a place for diathermy in the treatment of the more cooperative patients, but my present conviction is that there is more actual suffering with diathermy than with malaria.

Further observation and study are needed and may support or disprove this attitude. I should continue malaria treatments; in some patients tryparsamide; and in other and suitable cases, diathermy, each individual case being considered on its own merits.

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THE TREATMENT OF HYPERTENSION WITH POTASSIUM SULPHOCYANATE

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While the etiology of hypertension is still unknown and treatment will be inadequate until further research discloses the cause or causes, a great deal of attention has been directed to the symptom of hypertension itself. It is to be understood that in caring for patients with hypertension no form of drugs, physiotherapy or other resources can be considered adequate unless associated with a comprehensive, hygienic regime, carefully worked out for the individual patient. It might be referred to as a scheme of management. Having planned any appropriate treatment, either medical or surgical, of the suspected causes, we still have to consider remedial or palliative treatment of the hypertension itself. This has resulted in the study of a wide variety of drugs. It has been estimated that in this country 140,000 persons die each year from the consequences of high blood pressure, therefore the use of any drug, which would aid in its treatment should receive serious consideration.

In 1926, a number of investigations as to the use of potassium sulphoeyanate were carried on particularly in Germany and principally by Askanzy and Westphal and in this country Dr. Gager of the Cornell Clinic in 1928 reported favorably on its use. Nichols showed that the toxic effects of lethal doses in animals are (1) to abolish muscular activity; (2) to stop the heart; (3) to cause a rise in the blood pressure, if not immediately fatal; (4) to cause diarrhea in dogs; (5) to produce diuresis in rabbits; (6) in the final stages of poisoning to produce irritation of the motor cells of the spinal cord. The lethal dose for the average man of 150 pounds being given as from 5 gm. to 15 gm. With regard to the action of the drug there appears to be no definite knowledge. It has been suggested that it may act as a sedative, especially affecting the vegetative system and thereby relaxing peripheral vascular spasm.

The interest of the writer in the use of potassium sulphoeyanate was aroused in the course of his treatment of cases of endocrine

dysfunction. For several years past I have been called as a consultant by local physicians in cases, in which it was suspected that some mental factor was involved. These cases occurred mostly in women, between the ages of 35 and 45, who because of the general appearance of good health, were looked upon as neurotic individuals, who deserved scant sympathy and if the blood pressure happened to have been taken they were labeled as cases of essential hypertension with accompanying hysteria. On examination and inquiry it was found that these cases had for years been suffering from an endocrine dysfunction, which had been growing progressively worse and that these symptoms were particularly evident at or near the time of the menstrual period. These cases varied as to the degree of dysfunction but in four, showing classical physical signs and associated with such symptoms as headache, flatulence, constipation, dyspnea on exertion, history of rather rapid increase in weight and scanty menses, there were sudden and rather alarming rises in blood pressure, the systolic pressure not infrequently reaching 200 mm. This symptom was accompanied by a severe headache, ocular disturbances, some mental confusion and in one case the fear expressed that the patient was losing her mind. In this type of case prolonged treatment with various combinations of the endocrine products is indicated and the immediate problem was to give them relief as quickly as possible from the sudden spasmody contraction of the blood vessels and avoid the unpleasant and alarming symptoms occasioned by the sudden rise in blood pressure. For this purpose potassium sulphocyanate was used with excellent results and it has now been established as a routine treatment by the writer in all similar cases. Three grains given three times a day starting approximately four days before the menstrual period has avoided in great part such phenomena as described. This medication is continued until the patient has been on endocrine treatment for a period of at least three months, by which time the proper products and dosage have usually been established. In two of these cases potassium sulphocyanate was administered as described and then omitted at the time of the second period with the result that there was again a sudden rise in pressure, though in neither case was it as high as on first examination.

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This was probably explained by the influence of the endocrine products, which were being used.

Because of the marked success in this type of case in controlling this symptom, it was thought that something might be accomplished in the way of relief in some of the cases as seen in our State hospitals, suffering from arteriosclerotic hypertension. In the arteriosclerotic cases cited below, it would seem reasonable to conclude that due to the amount of sclerosis present vascular spasm would not play such a great part in the picture. An attempt, therefore, was made to determine the amount of vascular spasm present in three of the more cooperative cases, who were induced to inhale a pearl of amyl nitrite. Drops in systolic pressure as high as 80 mm. were observed but the test could not be considered accurate because of lack of full cooperation on the part of the patient.

In August, 1931, 12 male patients suffering from arteriosclerosis with high blood pressure were selected. These varied in age from 51 to 64. Cases were selected, who were in good general physical condition. Cases with heart and kidney lesions were not excluded. Urinalysis was carried out in all cases and only two of these cases were reported as being free from such findings as slight traces to marked traces of albumen or casts. Of these cases the lowest systolic pressure was 170 mm. and the highest 260 mm. The lowest diastolic pressure was 80 mm. and the highest 130 mm. Five grain doses of potassium sulphocyanate were given three times a day.

In view of the fact as reported in the literature that mental symptoms had developed in some cases, who had received heavy doses of the drug, it was decided to divide the group selected and allow four of these patients to continue on the initial doses while the rest of the group would be regulated as to dosage by the results of the treatment. In all cases the pressure was taken daily and urine examination performed twice a week. The group as a whole began to show a reduction in systolic pressure on the third day and most of them expressed the idea that they felt somewhat better. Following the administration of 15 grains daily for one week the entire group showed a drop in systolic pressure of from 20 mm. to 80 mm. with the majority obtaining a very substantial reduction. At this time the dosage in eight of the cases was reduced to two

grains twice a day but in the remaining four the original dosage was continued. The gradual fall in pressure was accompanied by relief from such symptoms as headaches, dizziness, sensation of fullness in the ears and ability on the part of the patient to think more clearly, which was appreciated by the patient and expressed by one as follows: "Doctor, I feel 20 years younger."

In the four cases allowed to continue on the original dosage, one on the fifteenth day collapsed on the ward and two days later the others of the group displayed such symptoms as unsteady gait, confusion and rambling talk resembling an acute alcoholic intoxication. This necessitated their removal to the hospital ward and the discontinuance of the treatment. While under observation in bed all of these cases displayed a mild euphoria with considerable confusion and two cases were unable to talk, although attempting to and laughing in a rather silly manner. Both of these patients gradually regained their speech, which at first showed a marked slurring, in from 24 to 48 hours. This symptom was in part at least due to an edema of the glottis. In these four cases the drop in systolic pressure ranged from 70 mm. to 110 mm. and was accompanied by a drop in diastolic pressure of from 15 mm. to 48 mm. The mental reaction of these cases lasted from four to eight days after withdrawal of the drug and the patients seemed to suffer no ill effects. No further treatment was administered to these four cases. Their blood pressures were taken twice weekly and at the expiration of a period of two months, they had approximately the same blood pressure as they had before receiving any treatment. In two of these cases there was a noticeable increase in the amount of albumen and number of casts in the urine but in all of the other cases there were no pronounced changes.

Because of the beneficial results obtained it was thought advisable to establish the procedure as a routine treatment on all favorable cases and this has been carried out for the past 18 months. At present there are approximately 35 cases under treatment. No attempt was made to regulate the diet as it was found that the majority of cases made strenuous objections, if any alteration was attempted. To date only four patients have complained of nausea and a general feeling of weakness and refused further treatment.

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All of the cases are ambulatory and two, who have residuals of a hemiplegia, seem to have been benefited most, at least insofar as the lessening of unpleasant head sensations are concerned.

It would appear from the observations made that individual tolerance plays a part in the use of the drug. No case is receiving less than two grains a day nor more than six at the present time. In a group of six of these cases the treatment was discontinued with a return to their normal pressure within from seven to ten days.

Although no definite conclusions can be drawn from such a limited number of cases, the following may be presented as impressions:

(1) Potassium sulphocyanate is effective in reducing blood pressure, both in the so-called essential hypertension and that due to an arteriosclerosis.

(2) The dosage may vary somewhat due to the individual tolerance. The majority of patients will secure a reduction of pressure on from two to six grains a day. Due to the toxic tendency and cumulative effect decreasing dosage should be used and it may be advisable to interrupt the treatment for short periods.

(3) Toxic effects may be produced by prolonged use of fairly large doses of the drug, which clear up promptly on withdrawal and apparently with no serious after-effects.

(4) Cases suffering from the toxic effects show a lower blood pressure over a longer period than those receiving non-toxic doses. This may possibly be due to the accumulative effect or to some persistent effect on the vascular tone.

(5) It should be emphasized that while the drug is of value in the treatment of hypertension, the patient should be under constant observation so that the administration may be easily controlled to avoid unpleasant side effects.

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THE FECAL FLORA IN CATATONIC DEMENTIA PRAECOX

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The importance of the intestinal flora as a primary or secondary factor in dementia praecox has been the subject of no little speculation. Without entering into a detailed discussion of the literature dealing with the pros and cons in regard to the role of bacterial toxins, intermediate products of protein decomposition, etc., it is universally recognized that the problem is exceedingly complex. Coupled with the enormous amount of painstaking labor required it is not at all surprising that few systematic studies of the fecal flora in catatonic dementia praecox have been published.

Torrey¹ and others have established that diet has a profound influence upon the nature of the intestinal flora. Sanborn² in a comprehensive report which includes 9 dementia praecox patients emphasizes the significance of the native flora and its modification by diet. However, no conclusive evidence has been brought forward to show that the fecal flora of patients with catatonic dementia praecox differs from that of normal adults.

Because of the paucity of reliable information and the importance of the general problem we undertook an investigation in which repeated fecal examinations were made on 4 catatonic dementia praecox patients who were on the hospital diet. The fecal specimens were brought to the laboratory within an hour or two of collection.

PROCEDURE

A small amount of the specimen taken on the tip of an applicator was emulsified in 10 c.c. of indicator solutions: brom cresol purple, brom thymol blue and phenol red, to determine pH by comparison with a Clark³ hydrogen ion colorimetric chart. About 10 grams of the specimen was emulsified in sterile physiologic saline and diluted in a test tube of standard bore (13.5 mm. inside diameter) until a blue wax pencil mark on the opposite side was visible through the suspension when held before a Spencer microscope lamp. This primary dilution was labelled A. The B dilution was prepared by diluting 1 part of A with 99 parts of saline; the C dilu-

tion was prepared by diluting 1 part of B with 99 parts of saline; and D was prepared by diluting 1 part of C with 9 parts of saline. Duplicate pour plates were made with 1 c.c. of each of the above dilutions in Ayers and Rupp's coliform agar, casein digest agar and brom cresol purple lactose agar. Streak plates from the various dilutions were made on dextrose rabbit blood agar, one-half of which were incubated aerobically and the other half anaerobically by the Morse-Kopeloff⁴ method. Spore-bearers were determined by heating approximately 5 c.c. of the various dilutions in narrow test tubes (1 cm. inside diameter) for 10 minutes in a water bath at 80° C. Also 1 c.c. of A and D from both the heated and unheated dilutions were inoculated into freshly boiled Robertson's cooked meat tubes. Mineral oil overlayed with paraffin was used as an anaerobic seal. The meat tubes were examined after 24 hours' incubation at 37° C for *C. Welchii* and after one week's incubation to determine the fermentative or putrefactive character of the flora. The putrefactive index used was that described by Torrey⁵ in his invaluable contribution to methodology which we have followed. Anaerobic milk tubes were incubated as a presumptive test for *C. Welchii*. Cocci were differentiated by diluting 1 c.c. of A with 9 c.c. of 1 per cent Na₂ CO₃ solution and incubating for 1 hour at 37° C after which blood agar plates were streaked and incubated for 2-4 days. The usual morphologic and physiologic criteria were employed for identifying micro-organisms isolated which were classified according to Bergey.⁶

The detailed enumeration of our data would occupy far too much space, consequently we have summarized our results in Table 1.

In general one is impressed by the fact that the fecal flora of these catatonic dementia præcox patients resembles very closely the findings in normal adults. The character of the flora is much less putrefactive than might be expected and offers little support to the belief that a toxic bacterial factor in the intestinal tract is causally related to the mental disease process. The incidence of *L. acidophilus* in the specimens examined is considerably lower than that ordinarily encountered in the mentally diseased.⁷ However, since the number of patients studied is so small it would hardly seem justifiable to make much of this finding, particularly

TABLE I. SUMMARY OF FECAL EXAMINATIONS

No. Spec.	Date	pH	Ferm. Put.	Average No. Col. B plate	Dominant aerobe	2nd dominant aerobe	Other aerobes	Anaerobes	
								E. enterica (hem.) Coccus (hem.)	
Pn-1	10-21-31	6.4-6.6		80	Enterococci	Zopfius group			
Pn-2	11-2-31	6.6	Sl. P	75	Enterococci Minute col. on E. coli blood plates largely predominant. N. S.	E. coli communis	Alc. metalcaligenes Alc. recti Alc. albus B. subtilis Diphtheroids	Sub-terminal Spore bearer, Proteolytic	
Pn-3	12-3-31	6.8-7.2	Sl. P	275	Minute col. N. S.	Enterococci	E. coli (communis, communior) E. grunthali Alc. recti 2 gram + rods. N. I.	Sub-terminal Spore bearer, Proteolytic	
Pn-4	12-7-31	6.6	P.	220	Minute col. N. S.	E. coli	Diphtheroids B. adhaerens B. centrosporus Gram + rod. N. I.	C. Welchii	
So-1	12-21-31	7.0-7.2	F.	650	E. coli	Enterococci	Diphtheroids Zopfius group	No anaerobes noted in frequent platings	
So-2	1-12-32	7.4-7.6	F.	20	Diphtheroids	Cocc N. I.	Enterococci 3 gram + rods—N. I.	Gram + rod— not proteolytic	

TABLE 1. SUMMARY OF FECAL EXAMINATIONS—(Continued)

No. Spec.	Date	pH	Average No. Col. B plate	Ferm. Put.	Dominant aerobe	2nd dominant aerobe	Other aerobes	Anaerobes
Bo-3	2-11-32	7.0-7.2	F.	4	Gram + rod. N. I.	Diphtheroids	E. coli E. enterica (hem.) Proteus L. acidophilus (?) Kurthia Zopfi E. leporis	Gram + rod— liquefies gelatin. Gram + rod— digests milk
Bo-4	5-12-32	7.6-7.8	F.	10	Diphtheroids		Alealigenes feedalis	Gram + rod, early spore for- mer, subterm- inal, mod. pro- teolytic
Cw-1	11-16-31	7.6-7.8	Mod. P.	1,000,000	E. coli	Diphtheroids	Staph. albus Gram—neg. spore bearer. N. I. Bact. anaerogenes (Ford) M. oralis B. mycoides	
Cw-2	11-25-31	6.8	Sl. P.	1,500,000	E. coli	M. ovalis	Diphtheroids Staph. albus Gram + spore bearer—N. I. Cocci. N. I.	
Cw-3	1-6-32	7.2	F.	2,500,000	E. coli		Enterococi Diphtheroids Cocci—N. I. 3 gram + rods—N. I.	

TABLE I. SUMMARY OF FECAL EXAMINATIONS—(Concluded)

No. Spec.	Date	pH	Ferm. Put.	Average No. Col. B plate	Dominant aerobe	2nd dominant aerobe	Other aerobes	Anaerobes
Cw-4	5-20-32	6.8	F.	12	M. ovalis	Diphtheroids	2 gram + spore bearers E. coli Alk. fecalis Cocci Eberthella dubia B. proteus	
Se-1	1-11-32	7.0-7.2	F.	4000-6000	Minute col. N. I.	Str. fecalis	M. ovalis E. coli Proteus Diphtheroids Cocci—dextrose, neg. N. I. Sarcinae Staphylococci	3 gram + rods differenting slightly. No ac- tion on meat or gelatin
Se-2	2-11-32	6.0-6.2	F.	4,100	(minute col.) N. I.	Gram + rod (minute col.) N. I.	E. coli E. gastraea Diphtheroid Cocci—N. I.	E. coli (indol not formed)
Se-3	5-3-32	5.8-6.0	P.	1,180,000	M. ovalis	L. acidophilus	E. coli Hem. cocci Escherichia—slow fermenter. Proteus Staphylococci	Gram + rods (minute col.) N. S.
Se-4	7-7-32	5.8-6.0	F.	8,000	Str. fecalis	E. coli B. proteus	Gram + rod— not proteolytic	

LEGEND: Col.—Colonies; Mod.—moderate; hem.—hemolytic; Sl.—slight; F.—fermentative;
 P.—putrefactive; N. I.—Not identified; N. S.—not subcultured.

in the presence of what is in the majority of instances a fermentative and not a definitely putrefactive flora.

In Table 1 reference is made repeatedly to a minute colony which it was impossible to subculture. There were also other microorganisms not identified because of certain insurmountable technical difficulties.

The hydrogen ion concentration, total bacterial count, predominating aerobes and anaerobes all fall within the limits of variation in the normal. Further, no unusual microbe appeared with sufficient consistency to be regarded as significant from an etiologic standpoint.

As has already been pointed out the technical difficulties of investigating the fecal flora in man are overwhelming. Our case material has, of necessity, been limited by a small personnel. Nevertheless, enough data have been accumulated to discourage further endeavor along these lines. So long as the bacterial flora of catatonic dementia praecox patients offers little deviation from the norm there is no real incentive to the continued bacteriologic examination of feces.

SUMMARY

1. Bacteriologic examination of the fecal flora of 4 catatonic dementia praecox patients was repeated monthly for 4 months.
2. The hydrogen ion concentration, total bacterial count, predominant aerobes and anaerobes all fell within the limits of variation in the normal.
3. The incidence of *L. acidophilus* was less than normal but the character of the flora was fermentative rather than putrefactive.
4. No unusual microbe was isolated with sufficient consistency to indicate that the bacterial flora might be causally related to the mental disease process.

ACKNOWLEDGMENT

This investigation was dependent upon the generous cooperation of the director, Dr. C. O. Cheney; the senior psychiatrists, Drs. J. R. Blalock and S. E. Katz; and the nursing personnel to whom we are grateful.

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EXPERIMENTAL TOXIC ENCEPHALOMYELOPATHY

(*Diffuse sclerosis following subcutaneous injections of potassium cyanide*)*

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The problem of the etiology and pathogenesis of diffuse sclerosis and multiple sclerosis has been put forth in the last few years especially in connection with acute encephalomyopathies following infectious conditions of childhood. The desire of reproducing experimentally these pathological conditions of diffuse or multiple sclerosis has been in the mind of numerous investigators, but unfortunately up to date, with the exception of very few reports, nothing definite has entered our current literature.

Diffuse sclerosis and multiple sclerosis are pathological conditions so closely related that I feel partly justified in applying to the etiology of diffuse sclerosis some of the knowledge we already possess in regard to multiple sclerosis.

The various theories concerning the etiology of multiple sclerosis relate to either infections or toxins. The theory of infectious origin of multiple sclerosis has particularly developed under Pierre Marie's¹ influence. Later on, based on the work of Bullock,² 1913, the possibility of a filtrable virus was considered. Besta and Ceni³ thought of aspergillus fungatis as one etiological factor. We all know in this connection the work of Chevassut and Purves-Stewart,⁴ which unfortunately has not been substantiated by further investigations of Carmichael,⁵ Tronconi,⁶ Arthur Weil,⁷ and others. On the other hand, Steiner⁸ thought the condition due to a spirochosis, a conception which, however, still lacks substantial proof.

The toxic theory has three groups of supporters: one following Marburg's⁹ idea that a ferment acts destructively on the myelin sheaths; a second one inspired by Strümpel¹⁰ and Müller's conception of an endogenous origin of the disease in the form of a primary involvement of the glia, and a third one believing the toxic

*Read at the meeting of the section of neurology and psychiatry of the New York Academy of Medicine, October 11, 1932.

factor to be an unknown endogenous substance which would primarily act on the myelin covering of nerve fibers.

Following Marburg's inspiration, Brickner¹¹ again took up the lead and tried to establish that the process of demyelination is due to a lipolytic ferment (lipase) present in the blood of multiple sclerosis patients.

The theory of a primary disease of the glia elements does not seem to have found very numerous advocates with the exception, possibly, of Scholz,¹² Collier and Greenfield,¹³ who feel this to be the case in diffuse sclerosis. Coenen and Mir¹⁴ in diffuse sclerosis also speak in terms of a primary disease of the oligodendroglia, while Wertham¹⁵ feels that neuroglia reaction may be set up irrespective of the process of demyelination.

Among the advocates of an endogenous origin related to an unknown toxin we can mention Hassin,¹⁶ A. Weil, Claude,¹⁷ and recently Putnam,¹⁸ who succeeded in reproducing the pathological lesions of multiple sclerosis following intraperitoneal injection of tetanus toxin in 2 out of 48 dogs. A. Jakob¹⁹ also feels that in diffuse sclerosis an endogenous metabolic toxin may be at the base of the pathological lesions.

Aside from such rather fragmentary reports I have been unable to find in the literature any investigation in which experiments carried on a large scale have given constant results in the reproduction of lesions which histopathologically can be classified either as multiple or diffuse sclerosis.

Following the lead of a supposed toxic origin of multiple sclerosis and because of the possibilities of diffuse sclerosis being also a toxic condition, I have tried to reproduce from an experimental standpoint the lesions characteristic of such conditions through the use of a substance, potassium cyanide, which, as we all know, interferes with the oxidizing power of the living cells. According to Warburg²⁰ cyanide affects the respiratory enzymes and, therefore, inhibits the respiration of tissues. F. O. Schmidt and O. H. A. Schmidt²¹ have established that oxygen consumption of resting nerves of the green frog may be practically completely inhibited by cyanide and that the ability of cyanided nerve to conduct an

impulse is affected in the same way as in asphyxiation by a complete failure after variable periods of time.

From this physiological approach I thought that oxygen interference might through faulty metabolism lead to the destruction of elements the result of which might end in the stage of multiple or diffuse sclerosis.

Cyanide is a part of our intermediary metabolism and, according to Werner,²² the hydrolysis of urea by acids or bases would result in a dissociation into ammonia and cyanic acid. According to A. P. Matthews,²³ in the course of biological oxidations isocyanic acid may be formed which undergoes rearrangement with ammonia to urea. Salkowsky²⁴ also believes that urea may be formed by the transformation of cyanamide, and Fosse considers cyanic acid the immediate precursor of urea.

Recently Brand and Harris²⁵ expressed the belief that on the basis of the cyanic acid theory of Salkowsky, Werner, and Fosse, creatine may possibly arise from a side reaction between cyanic acid and glycine.

My experiments have been carried on 14 cats and 4 monkeys. The animals were injected subcutaneously with increasing doses of potassium cyanide starting with a minimum dose of 2 mg. and increasing daily by $\frac{1}{2}$ mg. up to a maximum dose in one of them of 35 mg. daily. The total amount of potassium cyanide injected has naturally varied according to the resistance of the animal, one of the highest doses ever given being 600 mg. divided into 66 injections over a period of 132 days. Following each injection notes were taken concerning the clinical manifestations which can be summarized as follows:

1. Increase in the respiration rate in proportion to the amount of medicament injected.
2. Vomiting.
3. Bowel movement.
4. Twitchings, localized or generalized.
5. Occasional tremors of the head.
6. Occasional nystagmus.
7. Spasms and hyperreflexia and spasticity of the legs.
8. Following prolonged repeated injections the animals develop

a spastic paralysis of the hind legs which is, however, transitory and may last from a few hours up to a few days. If the injections are not discontinued the paralysis may remain stationary.

9. Blindness, which also seems to be transitory.

10. Generalized convulsions which may proceed from a single convolution to a status epilepticus, lasting over 24 hours.

From a histopathological standpoint, the lesions which are found under the microscope are the following:

A. NATURE OF THE LESIONS

1. *Myelin Sheaths:* A diffuse process of demyelination which involves indiscriminately various areas of the white substance, the process being, however, more pronounced in the frontal and the occipital region (Figs. 1 and 2). The areas of demyelination are very large, for the most not sharply defined, and involve almost exclusively the white substance respecting quite often the "U" fibers underneath the cortex (Fig. 3). The intensity of the demyelination is a various one going from a process of rarefaction to a complete destruction of the myelin sheaths (Fig. 4).

The process is particularly severe in the periventricular regions though the corpus callosum seems also to be a seat of predilection having been found severely involved in practically all instances (Fig. 5). The brain stem and the cerebellum are also the seat of demyelination, especially surrounding the fourth ventricle (Fig. 6). The process of demyelination extends also to the optic nerve and the optic chiasma where isolated or diffuse patches of the lesions are very often found (Fig. 7).

At times the demyelination assumes a concentric appearance as already reported by Marburg and Balo in cases of multiple or diffuse sclerosis.* The spinal cord is also severely involved and the involvement has not the characteristic of a secondary process of degeneration, the lesions being there very diffuse and involving the descending as well as the ascending pathways (Fig. 8). At times the intensity of the process is such as to result in a diffuse demyelination of all the white substance (Fig. 9).

* Hallervorden and Spatz,⁵⁸ in an article discussing the toxic origin of diffuse and multiple sclerosis seem to favor a diffusion of the lesions through a chemical process which may particularly account for the concentric type of demyelination. Fig. 6 of this paper illustrates the existence of such concentric type of demyelination in the white substance of the cerebellum.

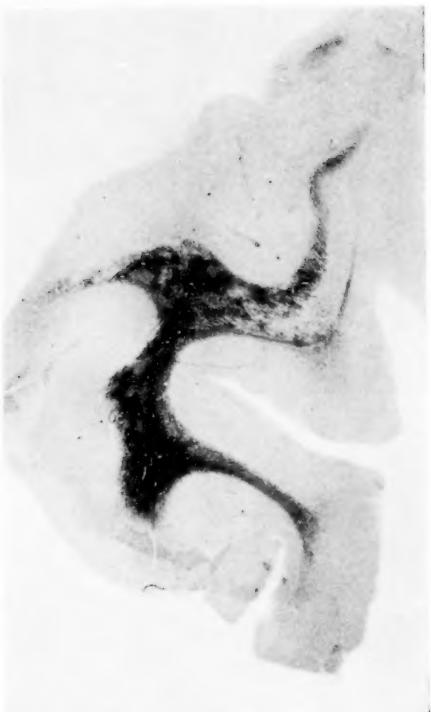
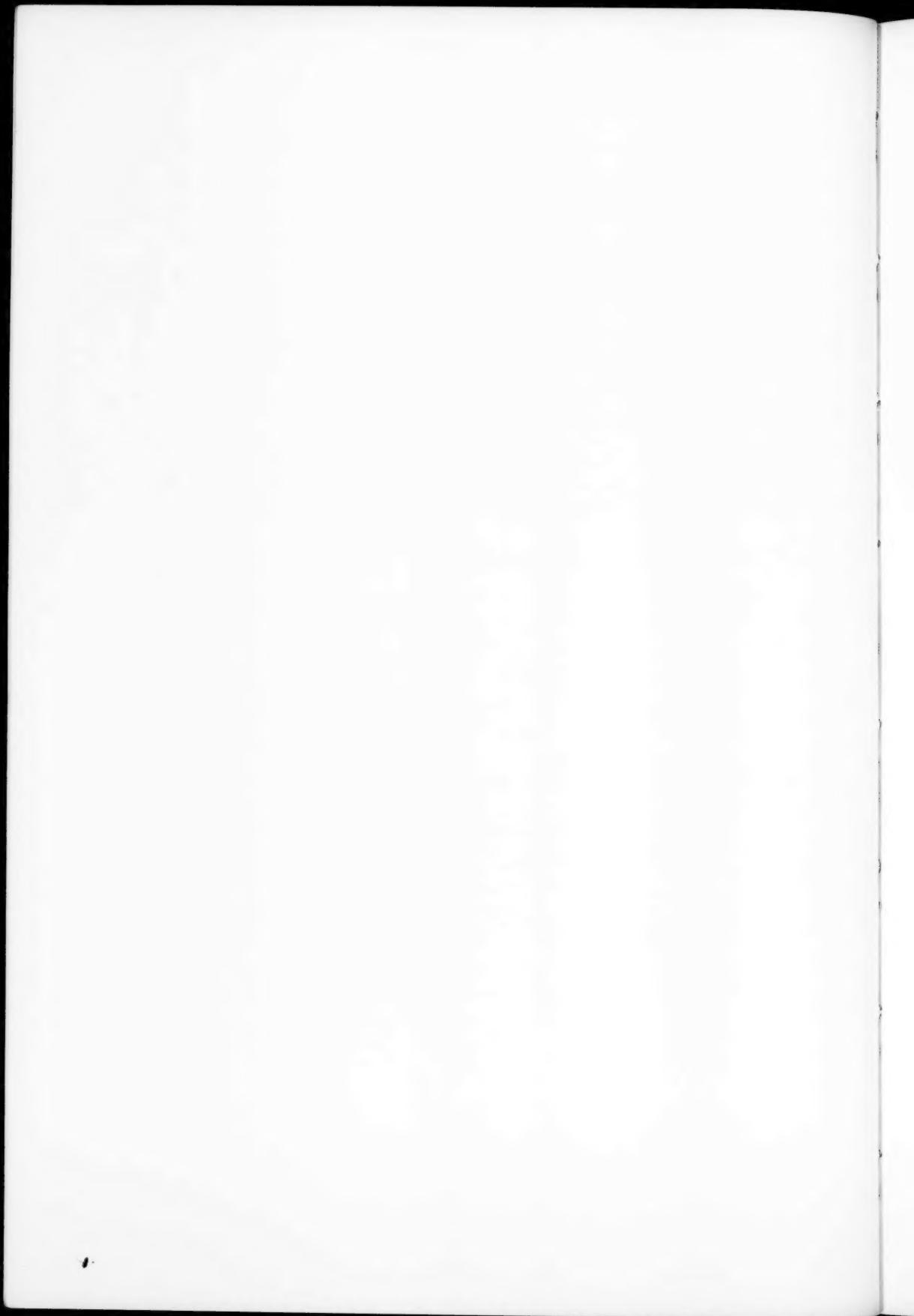


Fig. 1. Patchy areas of demyelination in the white substance of the frontal lobes. Spielmeyer method for myelin sheaths.



Fig. 2. Patchy and diffuse areas of demyelination in the white substance of the occipital region. Spielmeyer method for myelin sheaths.

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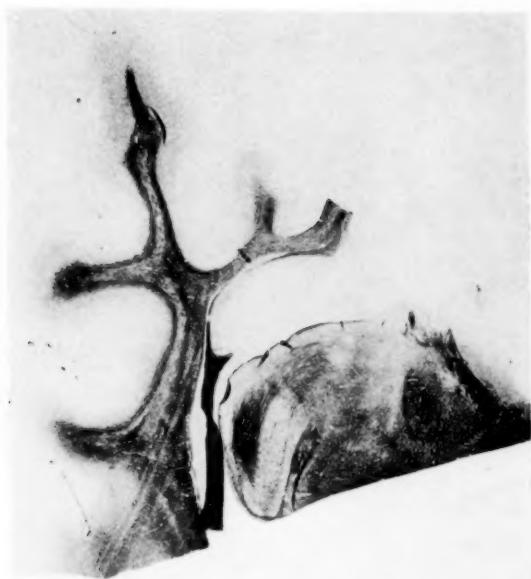
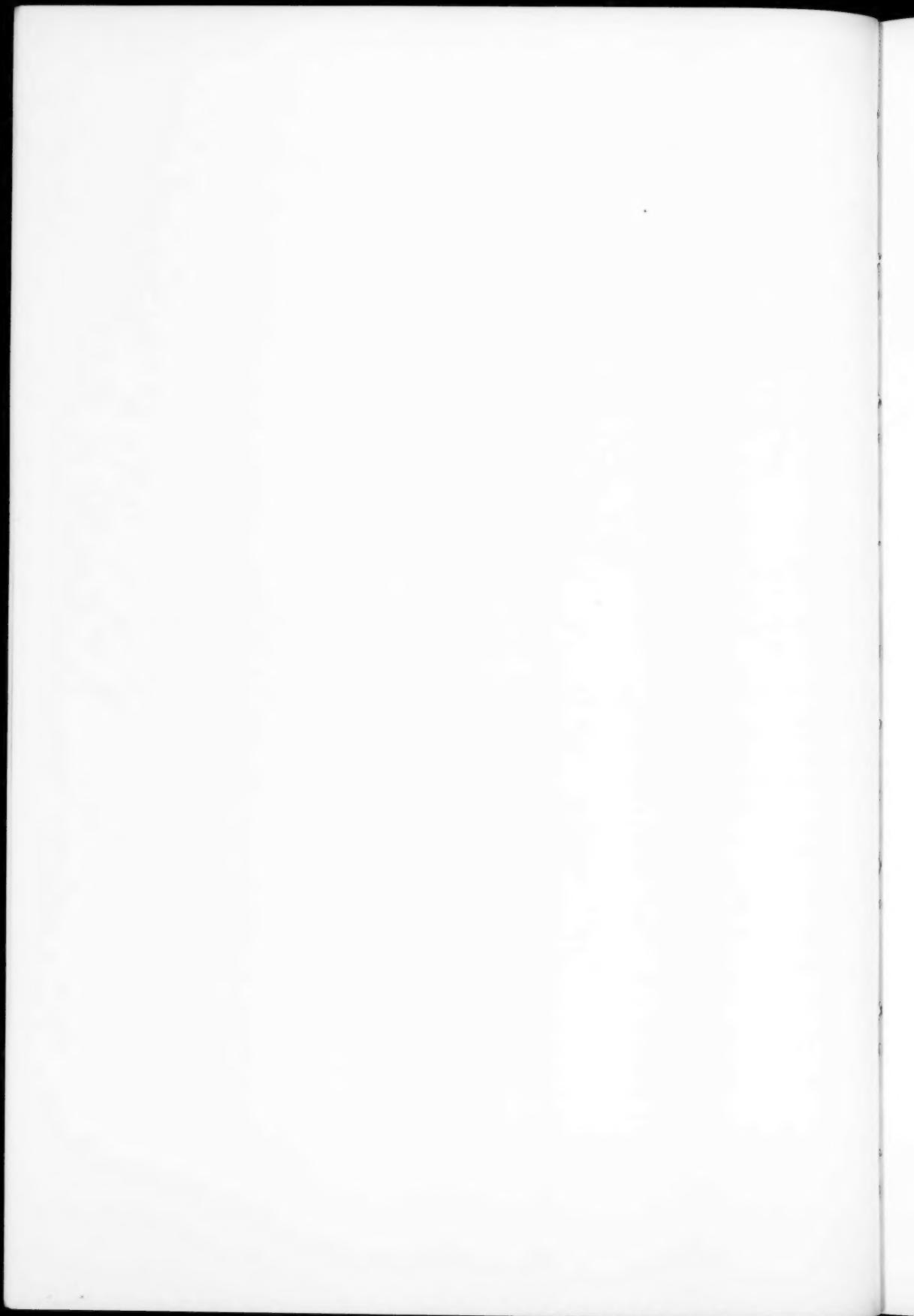


Fig. 3. Areas of demyelination in the white substance respecting the arcuate fibers.
Patchy areas of demyelination in the diencephalon. Spielmeyer method for myelin
sheaths.



Fig. 4. Diffuse areas of demyelination in the parietal and temporal areas with preser-
vation of arcuate fibers. Spielmeyer method for myelin sheaths.

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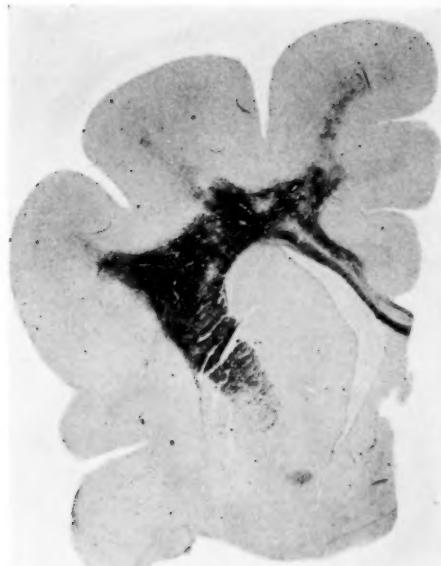
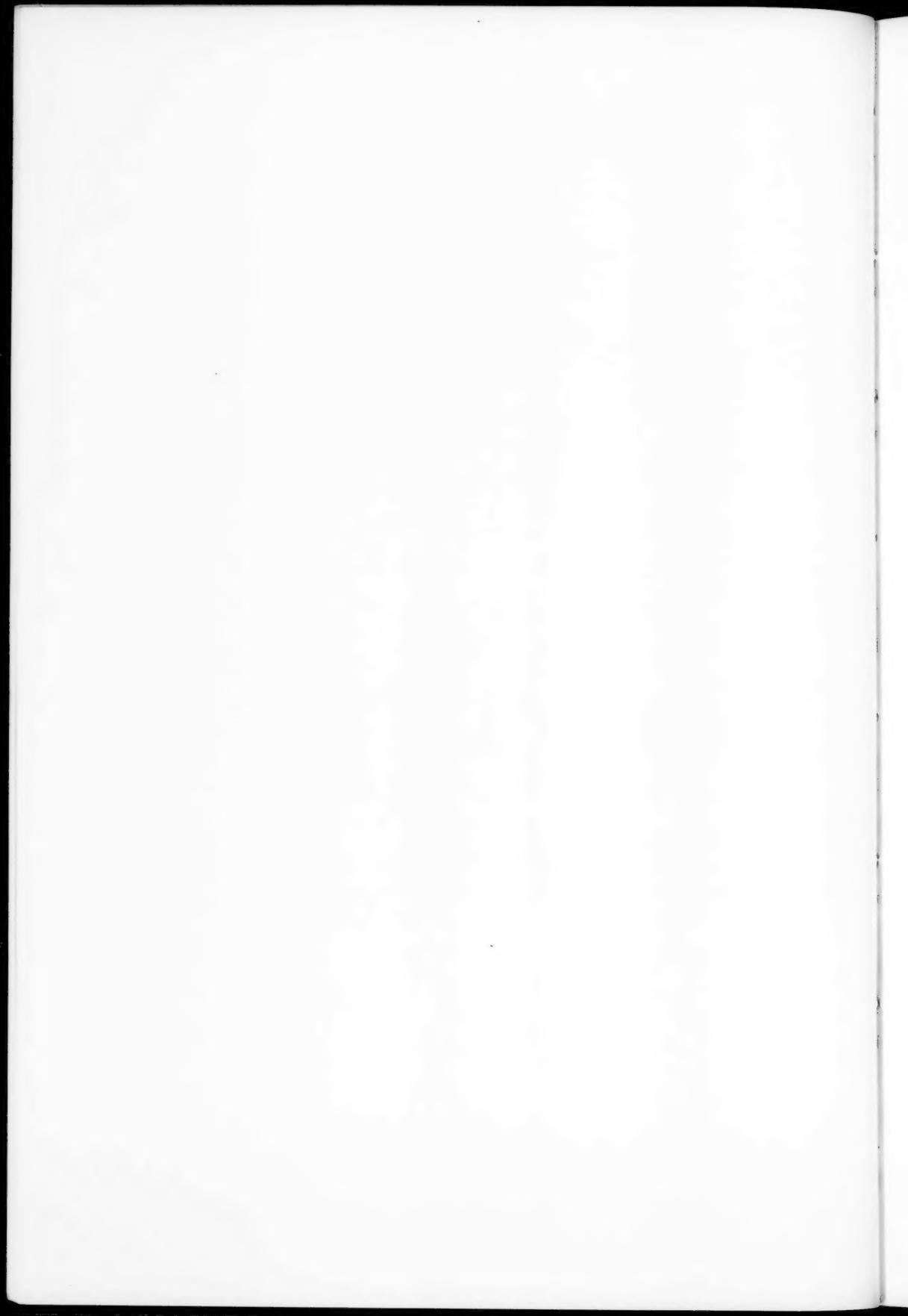


Fig. 5. Patchy areas of demyelination in the corona radiata and internal capsule and diffuse demyelination in the corpus callosum. Spielmeyer method for myelin sheaths.



Fig. 6. Patchy and concentric areas of demyelination in the white substance of the cerebellum. Spielmeyer method for myelin sheaths.





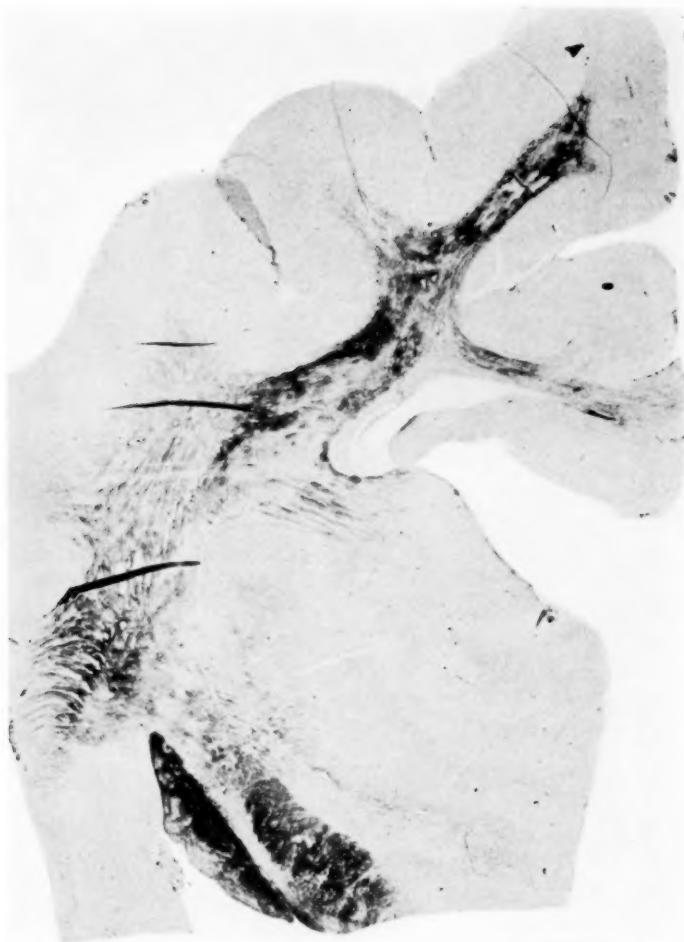
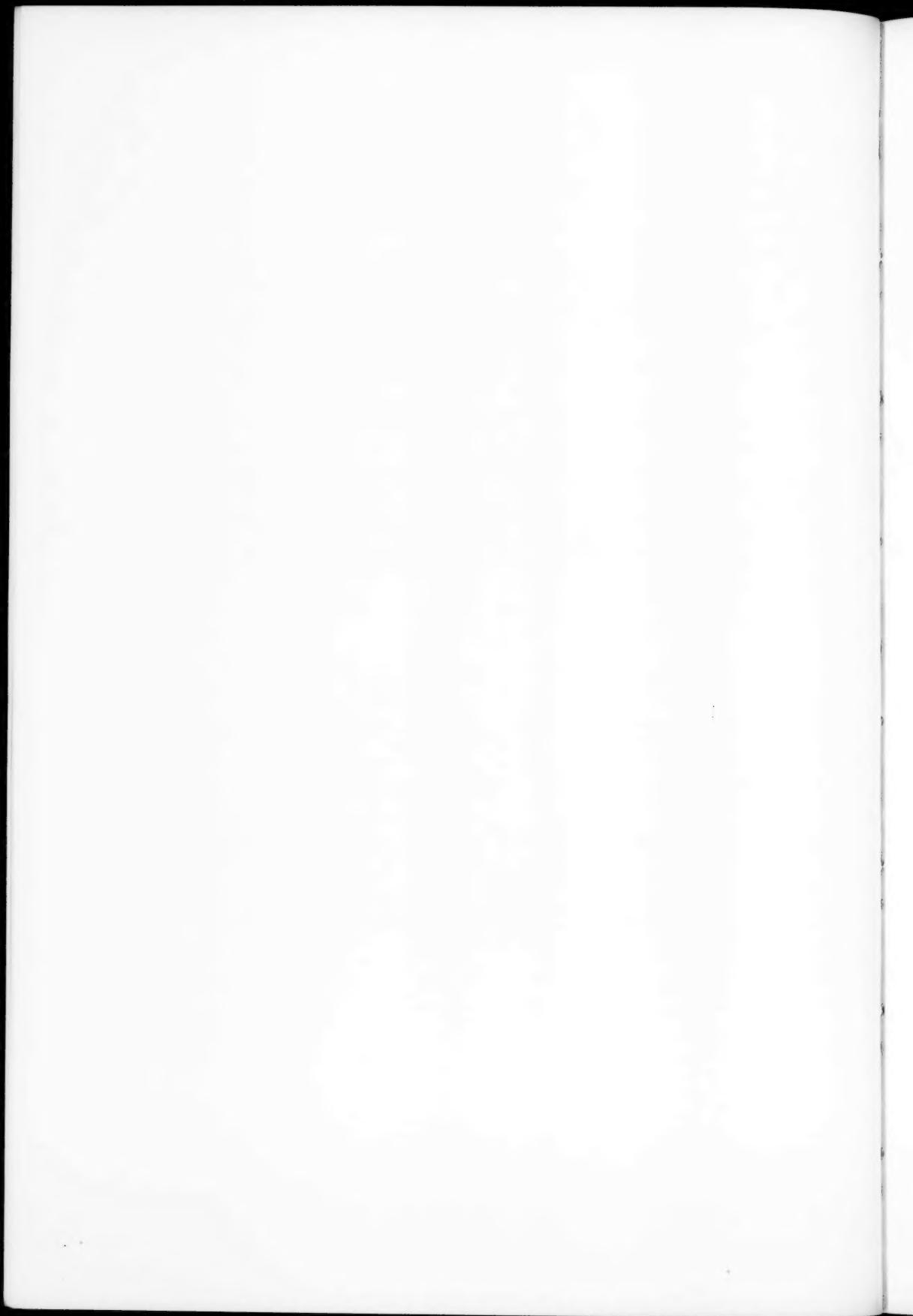


Fig. 7. Diffuse demyelination involving practically all the white substance of the cross section of the hemisphere. Severe involvement of the optic tract.
Spielmeyer method for myelin sheaths.

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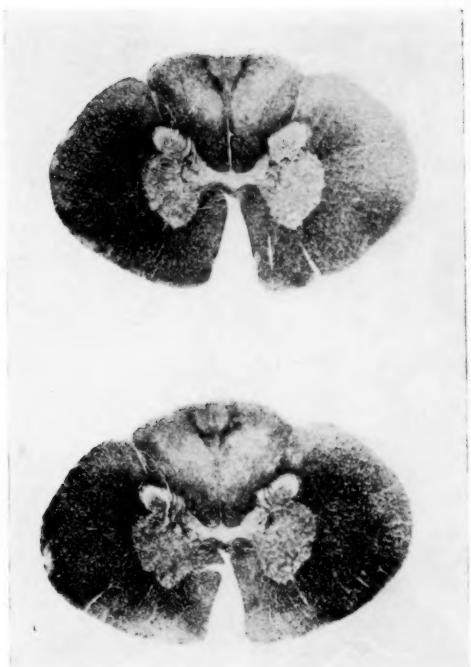


Fig. 8. Diffuse demyelination of the spinal cord with predominance of the lesion in the posterior column. Spielmeyer method for myelin sheaths.

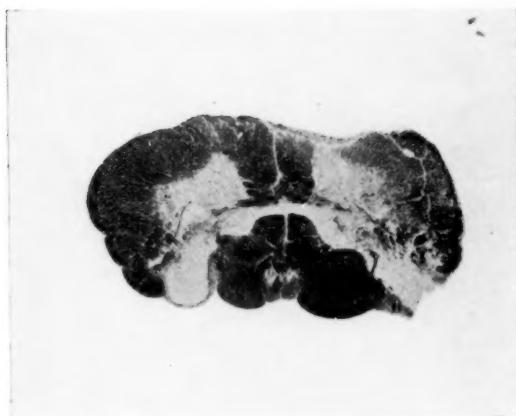
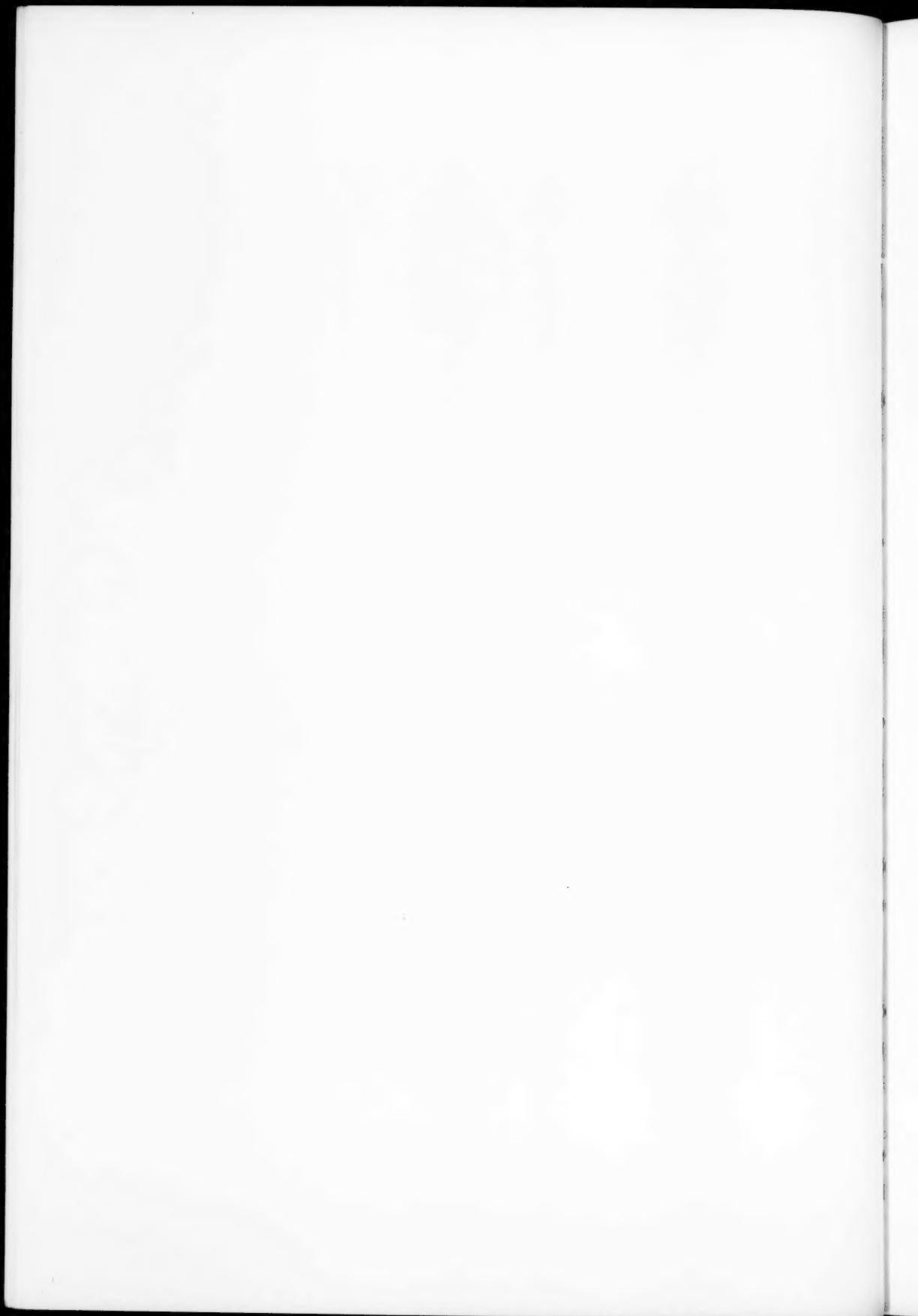


Fig. 9. Diffuse demyelination more pronounced over the right antero-lateral columns. Weigert stain for myelin sheaths.

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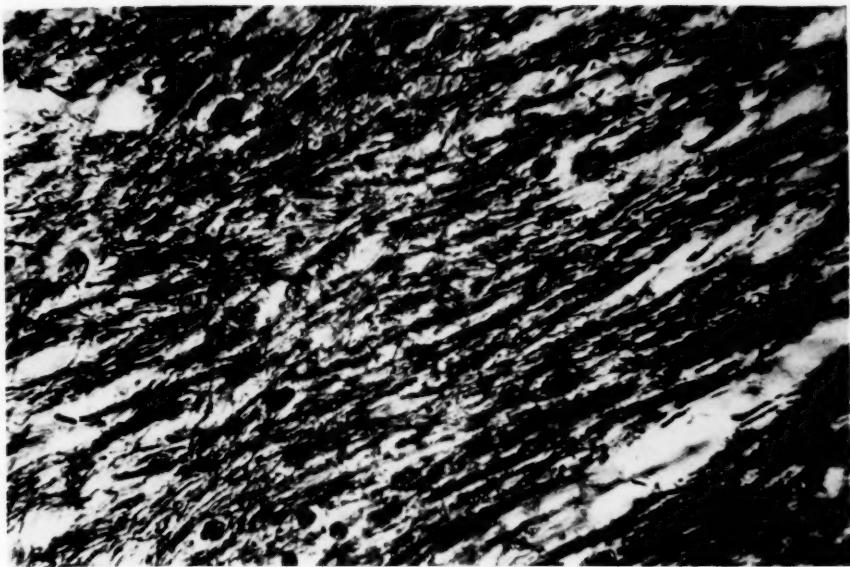


Fig. 10. Preservation of axis cylinders in an area of diffuse demyelination.
Bielschowsky method for axis cylinders.



Fig. 11. Considerable destruction of axis cylinders in an area of demyelination.
Bielschowsky method for axis cylinders.



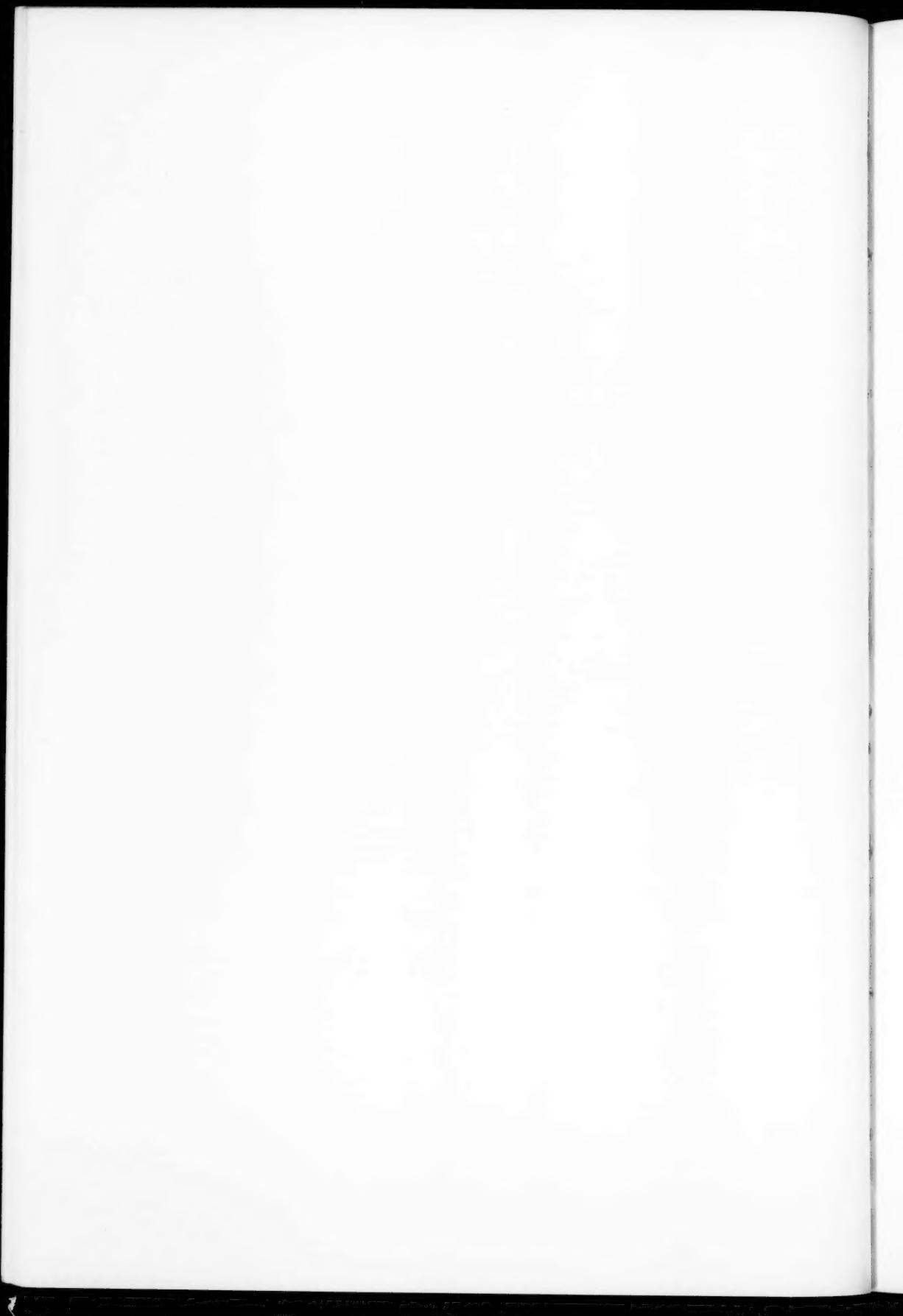




Fig. 12a. An area of demyelination to which corresponds:



12b. The diffuse gliosis of the same area as detected with the Holzer method.



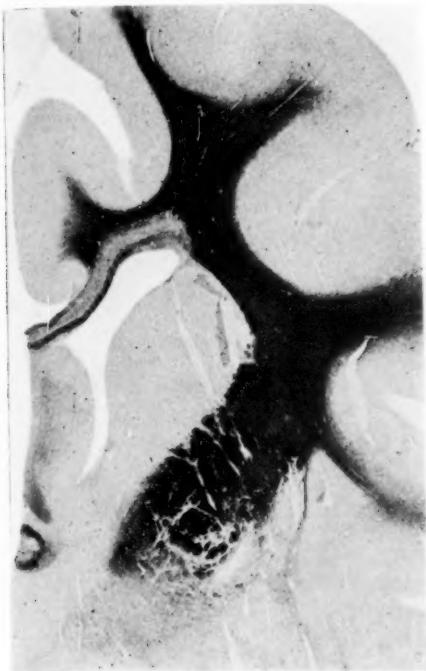
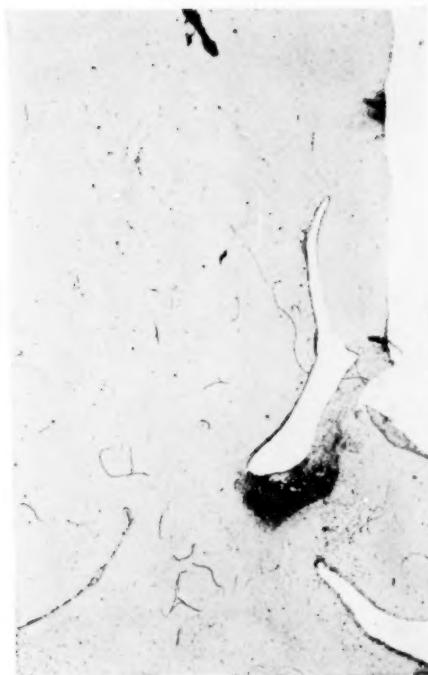
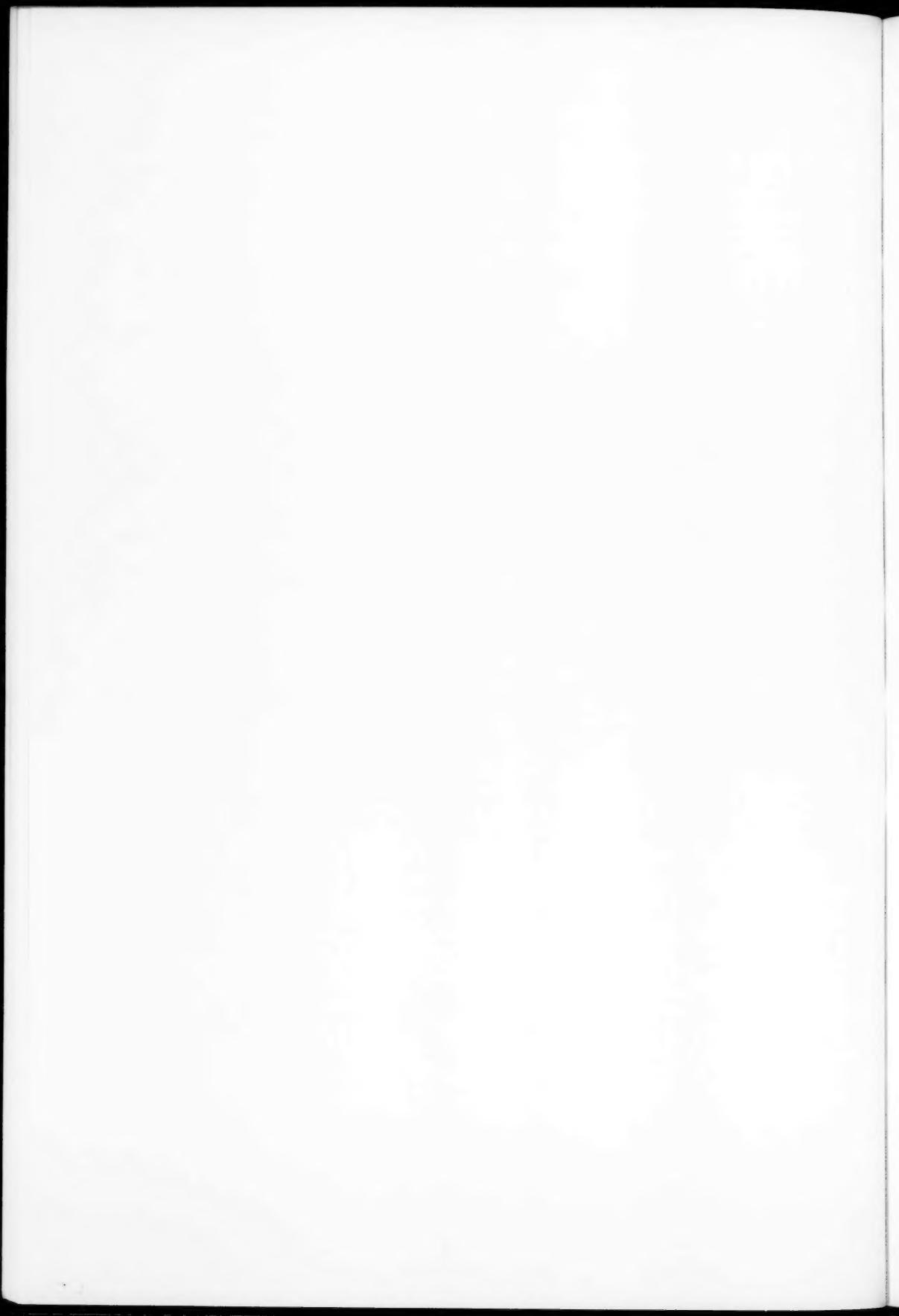


Fig. 13a. The demyelination of the corpus callosum to which corresponds:



13b. The intense gliosis of the same area as detected by the Holzer method.





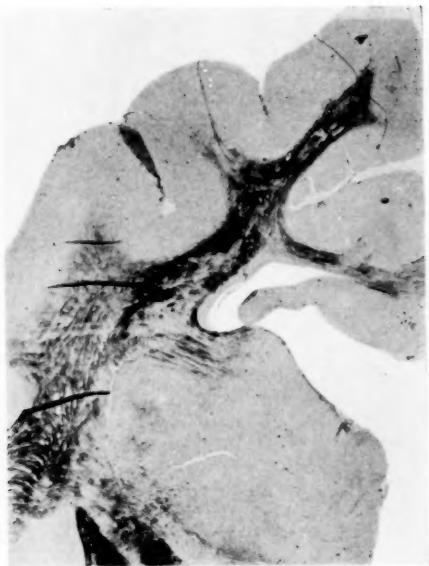


Fig. 14a. Diffuse process of demyelination involving the whole white substance to which corresponds:



14b. The diffuse process of gliosis, more pronounced in the area of demyelination. Holzer method.

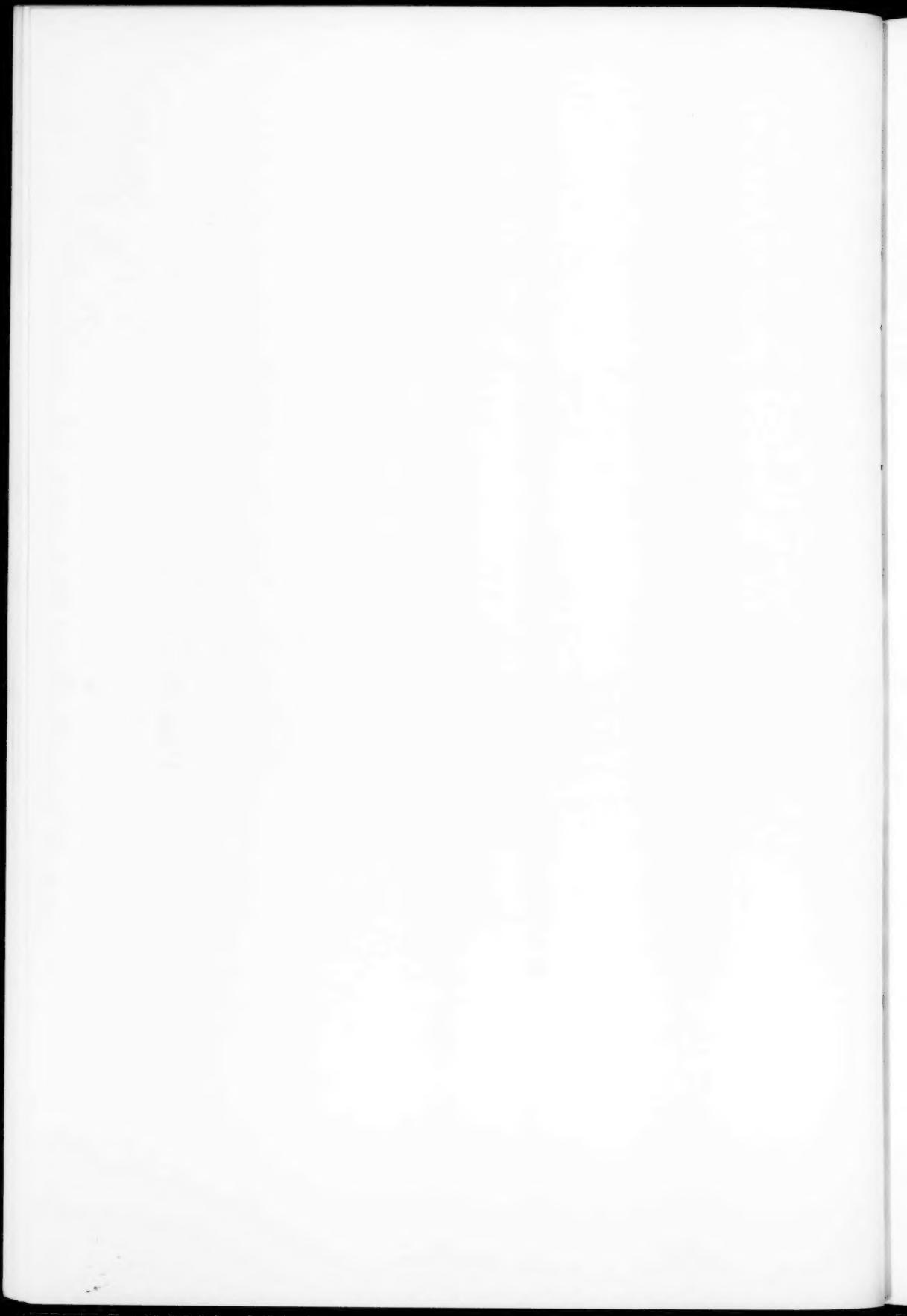




Fig. 15a. Marked demyelination of the optic nerve to which corresponds:



15b. The diffuse gliosis of the same area as detected by the Holzer method.

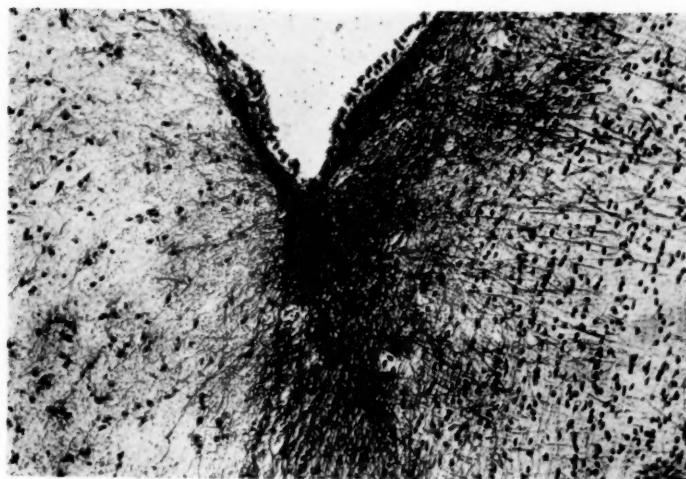


Fig. 16. Details of the process of gliosis involving the periventricular region. Holzer method for glia fibrils.





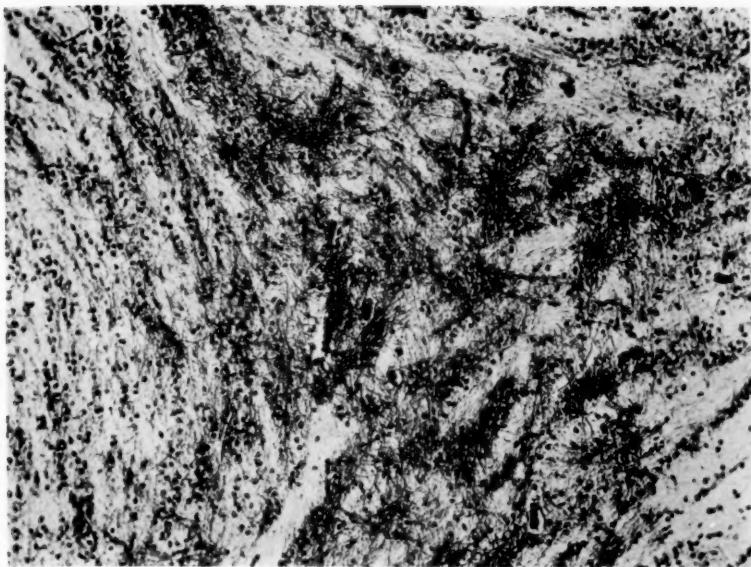


Fig. 17. Details of a process of gliosis in the midst of the white substance. (Anisomorphe type of gliosis) Holzer method.

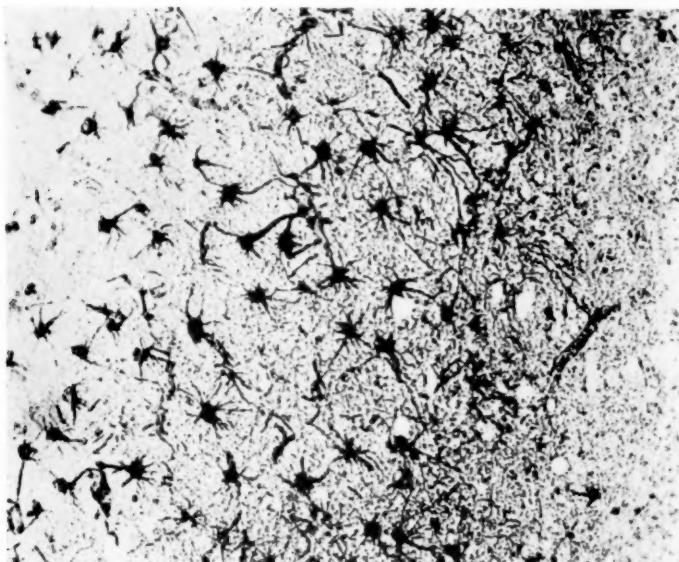


Fig. 18. Progressive changes of the astrocytes at the margin of an area of necrosis. Cajal gold sublimate method.

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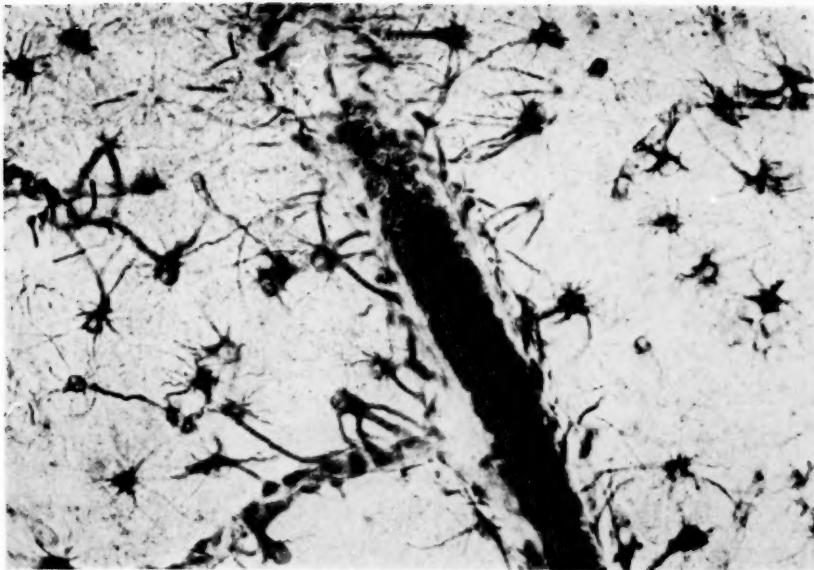


Fig. 19. Progressive changes of the astrocytes in the midst of an area of demyelination. Cajal gold sublimate method.

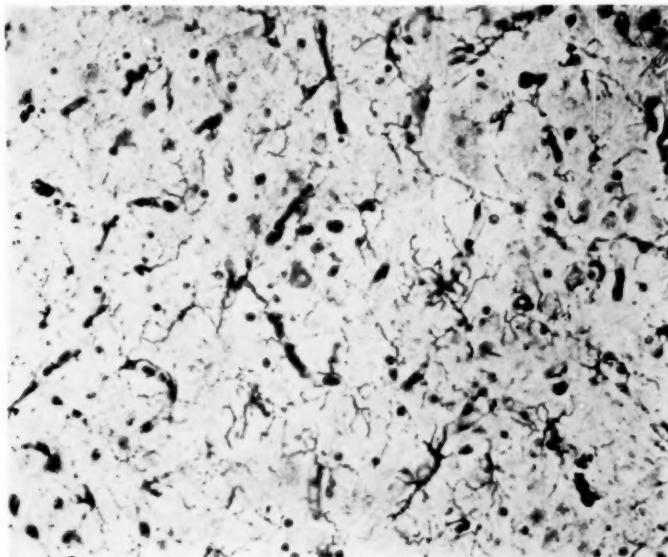


Fig. 20. Progressive and regressive changes of microglia elements at the border of an area of demyelination Globus-Penfield modification of the Del Rio Hortega silver carbonate method.



8

2. *Axis Cylinders:* The axis cylinders suffer a process of degeneration which, from a very moderate degree, may reach the stage of a more or less complete disintegration. There is not a definite parallelism between the involvement of the myelin sheaths and of the axis cylinders, the axis cylinders resisting much more the destructive process. In some areas, in fact, while the myelin sheaths are severely involved the axis cylinders are still well preserved (Fig. 10); conversely in others, both myelin sheaths and axis cylinders have completely disappeared (Fig. 11). The changes in the axis cylinders vary from the very elementary swelling to the fragmentation and to the granular disintegration of the structure.

3. *Neuroglia Elements:* Distinction must here be made between protoplasmic neuroglia and fibrous neuroglia. The fibrous neuroglia shows considerable reaction of the progressive type in correspondence to the areas of demyelination (Figs. 12, 13, 14). With the Holzer method for glia fibers a marked process of gliosis can be detected extending all over the white substance, but more pronounced in correlation with the areas where the process of demyelination is the most severe. A predominance of gliosis is also seen in the corpus callosum and in the periventricular areas. In the optic nerve (Fig. 15), chiasma, and optic tract patches of demyelination are seen in which a corresponding process of gliosis is detectable independently from areas of softening. Figs. 16 and 17 illustrates the details of two areas of gliosis; the first being subependymal and the second a diffuse process of the anisomorphe type. At the periphery of the process of demyelination, the astrocytes, as evidenced by Cajal's gold sublimate method, disclose considerable progressive changes of both hypertrophic and hyperplastic type. There is, in other words, a considerable increase in the size of the astrocytes as well as in the number of the elements (Fig. 18). In some areas of demyelination the protoplasmic astrocytes are also seen undergoing considerable progressive changes (Fig. 19), though the tendency to form glia fibers seems the dominant one. Monster glia cells are more often encountered in the areas of necrosis undergoing a process of repair or in their immediate vicinity, but in general the process of

gliosis is independent from the process of necrosis or from the softenings that are encountered only here and there.

4. Microglia and Oligodendroglia: The oligodendroglia elements are seen all over the white substance undergoing slight hypertrophic changes with a tendency towards vacuolization of the cytoplasm. In areas where the destructive process is very severe the oligodendroglia cells suffer a considerable reduction in number through a process of gradual disintegration. There is, however, no correlation between the process of demyelination and the involvement of the oligodendroglia as demyelination is found of a considerable importance even in areas where the oligodendroglia is present in large number.

The microglia cells are seen undergoing degenerative changes most of which tend toward the formation of fat compound granular corpuscles (Fig. 20). These elements are especially numerous in areas where the necrosis is very pronounced or in areas of softening (Fig. 21). In correspondence to areas of simple demyelination the microglia elements are better preserved though disclosing a tendency towards hypertrophy and occasionally degenerative changes of the type of clastomatodendrosis and disintegration of the elements. The fat compound granular corpuscles are seen surrounding the blood vessels even in areas free from softening where they seem to have a double origin, partly microglial and partly oligodendroglial. In areas of softening the compound granular corpuscles have also a mesodermic origin. In the midst of the cellular elements surrounding the blood vessels ameboid cells are also seen originating from astrocytes undergoing degenerative changes.

5. Blood Vessels: The blood vessels do not show embolic or thrombotic changes though in the most severely affected areas a swelling of the endothelium is noticeable (Fig. 22). Occasionally hyperplasia of the endothelium takes place through a mitotic process. Some of the blood vessels disclose hyaline degenerative changes—others hypertrophy of the adventitia covering. No particular increase in number of the blood vessels is noticeable in the areas where the destruction of the process is of a moderate intensity, whereas where the process of destruction reaches the degree of a true necrosis attempts toward progressive changes are seen in

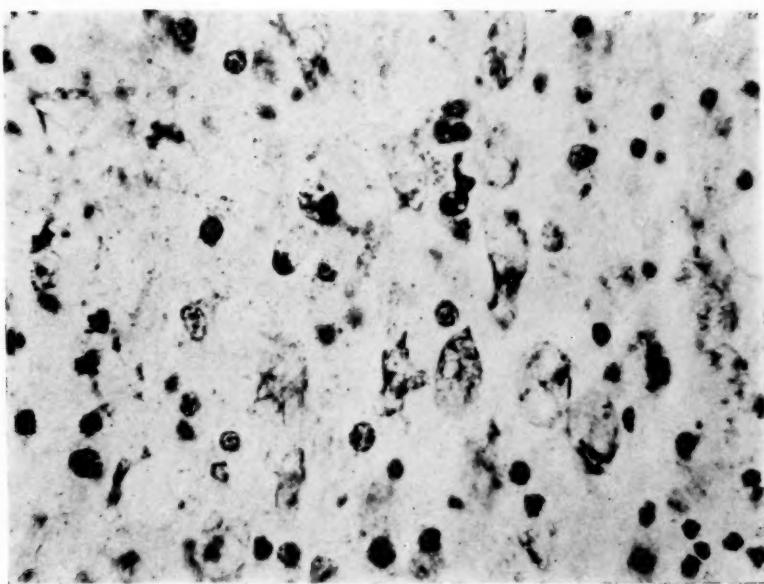


Fig. 21. Fat compound granular corpuscles in the midst of an area of demyelination and softening. Globus-Penfield modification.

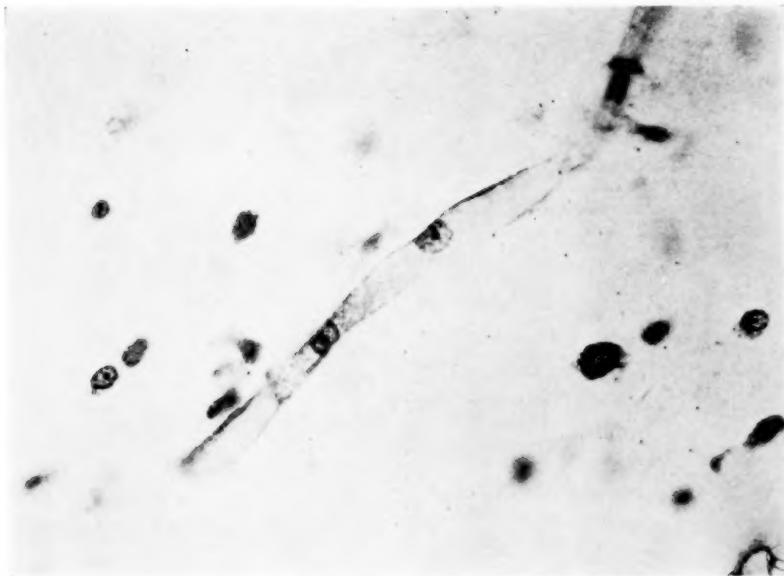


Fig. 22. Swelling of the endothelial elements of a small blood vessel Nissl method.





Fig. 23. Inflammatory changes in the meninges detected in only 2 of the 18 cases.
Nissl method.

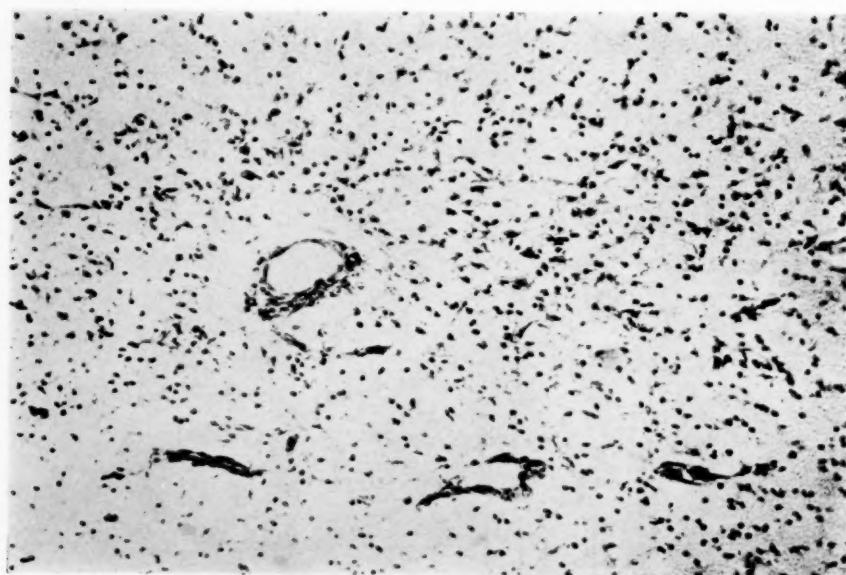


Fig. 24. Progressive changes of the neuroglia and perivascular proliferation and collection of cellular elements simulating an inflammatory reaction. Nissl method.



the sense not only of a relative but of an absolute type of increase in the number of the blood vessels partaking in the process of repair.

6. *Inflammatory Manifestations:* Out of the 18 animals which have already been studied histologically only 2 presented definite inflammatory lesions which would satisfy the classical requirements of an inflammatory condition, that is, the combination of destructive changes, proliferative changes, and presence of exudate. In these two cases the typical perivascular exudate formed by lymphocytes and plasma cells was present not only in the white substance but extended also to the gray matter and to the meninges (Fig. 23), the histological picture being a definite one of meningoencephalitis.

In the remaining 16 cases no inflammatory lesions were disclosed though in the area of major involvement a perivascular collection of cellular elements is often seen (Fig. 24). These elements are, however, almost exclusively represented by fat compound granular corpuscles or by neuroglia and microglia cells in an early phase of reaction (Fig. 25). No lymphocytes or plasma cells were detectable so that in the great majority of cases the process can be labeled as a true degenerative one.

7. *Fat Products of Disintegration:* Outside of the area of softening or necrosis where compound granular corpuscles are found in a more or less abundant number no fat products of degeneration are detectable with the Scharlach R or Fett Panceau. It is possible that the type of degeneration in the area of demyelination is influenced by the lack of appropriate oxydation and that the fat tissue does not undergo the usual transformation into neutral fat which is detectable with the Scharlach R.

8. *Areas of Necrosis:* Here and there in connection with a very intense degenerative process, areas of necrosis are found in which all the elements have undergone degenerative and destructive changes. In these cases not only the myelin sheaths and the axis cylinders have disappeared, but also the glia elements are barely detectable. The white substance is ultimately represented by granular disintegrated material. In these cases areas of softening are not necessarily present and therefore the reaction of the connective

tissue may also be absent at least temporarily while the blood vessels still maintain their continuity.

9. *Areas of Softening:* Here and there, in some of the cases where the lesions seemed to be extremely severe, foci of softening are found in which the characteristic histological picture can be detected of disintegrated nervous tissue and breaking of the ectomesodermic barrier so that mesodermic and ectodermic elements can be seen fusing in an attempt to repair. It is only in areas of softening that the mesodermic connective tissue is seen invading the areas of softening (Fig. 26) and together with a progressive type of reaction on the part of the neuroglia elements gradually proceed to the process of scar formation. Numerous compound granular corpuscles are here encountered, the origin of which is partly ectodermic and partly mesodermic.

The number and extension of the areas of softening is variable and occasionally large areas are found, especially surrounding the posterior horn of the lateral ventricle. The softenings do not, however, represent the main histological picture as it seems to be claimed by A. Meyer,²⁶ nor do the areas of softening predilect the striatum as found in dogs by the same author.*

B. DIFFUSION OF THE LESIONS

1. *Involvement of the Cortex:* With the exception of the two cases in which inflammatory lesions were present in the meninges as well as in the gray matter, the remaining cases show in some instances a well preserved cortex. In a few other cases involvement of the cortical nerve cells is found consisting especially in acute degenerative changes of the severe type of Nissl (Fig. 27). These lesions do not show any seat of particular predilection and are scattered all over the various cortical areas. In a few other cases acute degenerative changes of the nerve cells are lacking,

*Mayer²⁹ identifies the lesion following cyanide poisoning with the lesion following carbon monoxide poisoning. He insists particularly on the symmetrical softening of the basal ganglia. In my first series of experiments I have found only twice in 18 experiments the existence of softening in the basal ganglia with predilection of the pallidus. In two other cases which I have submitted to chronic intoxication with cyanide for a period of over 6 months I have found that the softening extended to the pallidus but in association with numerous other areas of softening distributed all over the cortex and brain stem.

I here insist again on the fact that the gliosis which I have described in my cases and which in the cerebellum at times is considerably marked, may be entirely independent of any area of softening and therefore cannot be considered a reparative type of gliosis.

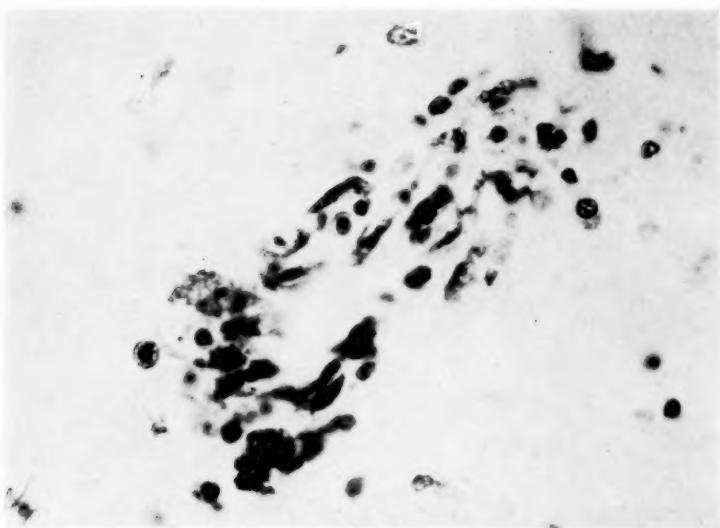


Fig. 25. Fat compound granular corpuscles forming the bulk of the perivascular proliferation. Nissl method.

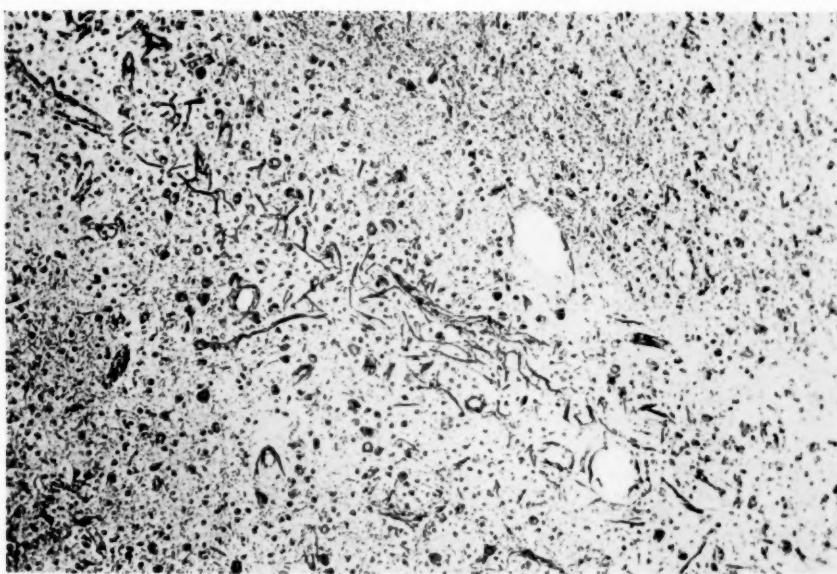


Fig. 26. Process of repair in an area of softening. Invasion of the brain substance by mesenchymal tissue Bielschowsky method for neurofibrils.



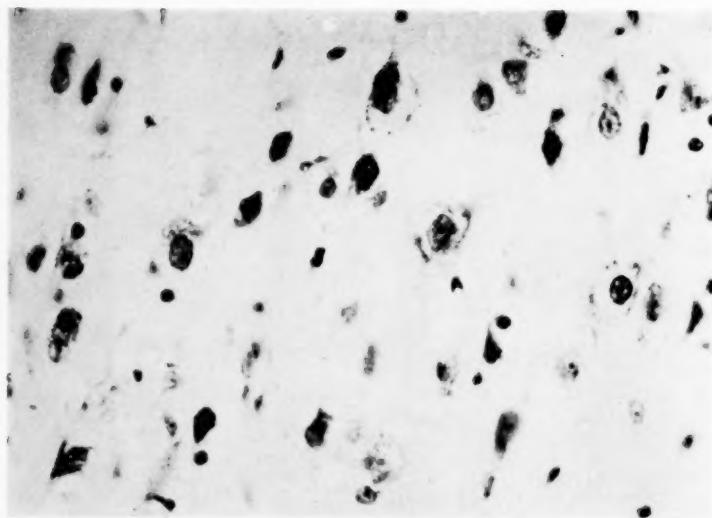


Fig. 27. Nerve cells undergoing acute degenerative changes of the Nissl type.
Nissl method.

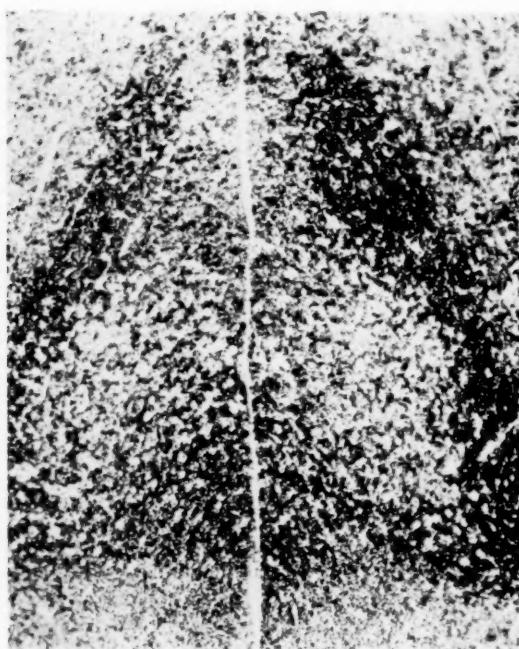


Fig. 28. Details of the process of demyelination in the posterior columns of the spinal cord. Spielmeyer method for myelin sheaths.

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whereas a shrunken appearance of the element is more apt to be detected. Occasionally small areas of softening are found in some instances, especially in cases where the convulsive manifestations have been a dominant factor of the clinical symptomatology.

Altogether there is a marked discrepancy between the severity of the lesions in the white substance and the rather mild reaction in some cases of the cellular elements of the cortex.

2. *Optic Nerve and Optic Tract:* Patches of demyelination or large areas of the same are found in the optic nerves, optic chiasma, and optic tracts. The pathological process is fundamentally the same as the one described in the brain tissue. The intensity and the extension of the lesions vary from case to case but seems to be essentially represented by demyelination and gliosis with quite good preservation of axis cylinders.

3. *Involvement of the Spinal Cord:* As already said before, the spinal cord is severely involved though areas of softening have never been found. The posterior columns (Fig. 28) seem to suffer predominantly though the process of demyelination is a very diffuse one involving at times the whole transverse sections. The axis cylinders seem to resist somewhat more than the axis cylinders of the brain structures. The fibroglia reaction is also much less pronounced in the spinal cord than it is in the brain tissue itself. Occasionally in longitudinal sections only patches of gliosis are found and in a few cases they are not even detectable with the technique used so far (Holzer and Anderson). The nerve cells disclose often acute degenerative changes which are also detected in some of the astrocytes of the gray matter.

4. *Spinal Roots:* The process of demyelination is seen to invade also some of the spinal roots, especially the posterior ones where fundamentally the pathological process consists also in demyelination with better preservation of the axis cylinders and no areas of softening.

5. *Patches of Demyelination:* Though the process is fundamentally one of diffuse sclerosis in which the destruction of myelin sheaths and later on of axis cylinders and substitution with glia fibers is a diffuse one and symmetrical in both hemisphere, here and there in the brain and cerebellum small patches of demyelina-

tion can be found, some of them having clear-cut edges and not differing histologically from the ones described in cases of multiple sclerosis. While some of the patches seem to preserve their individuality others have a tendency to coalesce in order to form a larger patch of diffuse sclerosis.

COMMENTS

The above reported experiments show conclusively that a condition of diffuse encephalomyopathy possessing the histopathological characteristics of diffuse sclerosis can undoubtedly follow the administration of repeated doses of a toxic substance. There is no doubt as to the degenerative nature of the lesions which I have found in all but two of the cases and it seems to me a well-established fact that the pathological condition which I have experimentally reproduced is toxic in origin.

How far can we go now in comparing this picture of diffuse encephalomyopathy in cats and monkeys with the condition of diffuse sclerosis in man. We all agree that we cannot expect in animals, especially of the lower scale, the exact symptomatology which we find in man. Besides, the lesions may vary according to the species of animal under experiment and we know that comparative pathology is now gradually developing, as advocated by A. Meyer.

There are, nevertheless, definite points of analogy between the experimental and the human pathological picture of diffuse sclerosis which should not be forgotten. We have, indeed, identity of facts from both the clinical and the histological standpoint. From the clinical standpoint I have reported, in the animals under the action of potassium cyanide, such symptoms as tremors, nystagmus, spastic paralysis, temporary blindness, hyperkinetic and convulsive manifestations which undoubtedly form a very important part of the clinical picture of human diffuse sclerosis. From the histopathological standpoint the analogies are still more indisputable. I have found a very definite process of demyelination with its characteristics of diffusion and symmetry. I have found the typical involvement of the axis cylinders and the typical glia reaction in the form of definite general anisomorphe type of gliosis. I

have reported characteristic areas of necrosis and softening. I have emphasized the predilection of the lesions for the white substance and their greater severity in the periventricular areas, all characteristic of the pathological process of diffuse sclerosis in man. We cannot, therefore, be extremely resistive to the suggestion of a pathological affinity and may be of an identity between the human and the experimental condition.

Though not necessarily connected with the results of my experiments we may at this point consider the question of the identity between multiple and diffuse sclerosis. In regard to this very important question I feel that those authors who, like Kufs,²⁷ Bouman,²⁸ Balo,²⁹ Schaltenbrand,³⁰ Wertham,³¹ Gozzano and Vizioli,³² Lauritzen and Lundholm,³³ believe that between multiple and diffuse sclerosis the difference is only a question of extension and intensity of the lesions and that the two pathological processes are fundamentally identical, are certainly basing their contention on facts the importance of which cannot be easily overlooked.

Indeed, in diffuse sclerosis as well as in multiple sclerosis there is a predilection of the lesions for the periventricular areas. In diffuse sclerosis as well as in multiple sclerosis the axis cylinders may be more or less respected, and though in diffuse sclerosis the involvement of the axis cylinders is more pronounced, very often in multiple sclerosis areas have been also described in which the destructive process has involved the axis cylinders as severely as it has the myelin sheaths. In diffuse sclerosis as well as in multiple sclerosis small foci can be found in which the areas of demyelination seem to be dependent on the territory of the blood vessel. Conversely, in both diffuse and multiple sclerosis territories have been found entirely independent from the blood vessels, as reported by Dawson, Falkiewicz,³⁴ Pette,³⁵ etc. In diffuse sclerosis as well as in multiple sclerosis areas of involvement have been reported in the cortex and in diffuse sclerosis, where generally the spinal cord is preserved, primary involvement of this structure has been reported (D'Antona,³⁶ Urecchia and Mihaleseu,³⁷ Gozzano and Vizioli, etc.). In both multiple and diffuse sclerosis areas of necrosis and softening have been reported (Bielschowsky,³⁸ Lüttge,³⁹ Weisenburg and Ingham,⁴⁰ Wohlwill.⁴¹

Finally, in diffuse sclerosis several authors, among which Hallervorden,⁴² Stewart, Greenfield and Blandy,⁴³ Kufs,⁴⁴ and Wertham,⁴⁵ Vizioli and Gozzano,⁴⁶ have reported cases in which close to large areas of demyelination small areas were found not differing at all in character from the small areas typical of multiple sclerosis.

Irrespective of the identity of multiple and diffuse sclerosis, a problem which certainly cannot be discussed at length in this short paper, the next interesting point to discuss concerns the nature of the pathological condition, if, in other words, the lesions which I have reproduced experimentally have to be considered inflammatory or degenerative in type. I repeat here that 16 out of 18 cases studied disclose purely degenerative changes and only here and there is some of the cases the perivascular spaces show presence of few lymphocytes intermingled with scavenger cells. In 2 out of 18 cases we are undoubtedly dealing with a primary inflammatory process, as inflammatory lesions, in the classical sense of the word, are not only found in old areas, but in very recent areas where demyelination is not present (cortex and meninges) thus excluding the symptomatic nature of the inflammation which, as it is well known, can be found accompanying purely degenerative processes.

I am at a loss as to an explanation of the inflammatory lesions of the two above-mentioned cases and the chance that the toxic factor may have stirred up a latent infection is a possibility to be kept in mind. On the other hand, it may be possible that a toxic factor by itself can, under particular circumstances, such as a particular form of resistance of the tissue, develop a true inflammatory reaction. In this connection we also know that experimental aseptic emboli result in the early stages into a definite inflammatory lesion with exudate containing a large amount of polys, as first reported by Nissl, and recently by Cone and Barrera,⁴⁷ Putnam and Morrison,⁴⁸ and Berluechi.⁴⁹ All these factors together lead to the conclusion that possibly our conception of an inflammatory lesion is not as yet a very firm one and that probably in the future we will have to change our standing as to the relationship between inflammation and infectious processes. It seems to me that we have more than one fact in hand in substantiation of the fact that a true type of inflammation may be produced by an aseptic condition

or by toxic factors irrespective of a definite infection. Such a unification would help our understanding of various pathological conditions in which a few authors consider the processes primarily degenerative, while others consider them as primarily inflammatory. This would apply particularly to diffuse sclerosis, where, as we all know, since Schilder⁵⁰ has described his particular variety of the disease, we distinguish an inflammatory form, a degenerative form, and possibly a blastomatotic form. It may well be that the so-called inflammatory variety may only be a different aspect of the process resulting from the same noxious agent acting under conditions still escaping our means of investigation.

That a toxic factor may be at the base of nervous complications even in general infectious pathological processes is also substantiated by the fact that following various exanthematous diseases of infancy, as measles, varicella, smallpox, etc., a diffuse encephalomyopathy may occur. The question of the toxic or infectious nature of such a complication has been widely discussed, some of the authors favoring its infectious origin. I personally feel that we are dealing in most of these cases with a toxic condition resulting into a diffuse encephalopathy. My contention is based on the type of histological lesion found in the white matter in which no definite inflammatory changes are seen and on the typical diffuse lesions of the cortical nerve cells which in some cases described (Ferraro and Scheffer⁵¹) are morphologically identical to the lesions that we experimentally reproduce with exogenous toxic agents.

In considering the relationship of diffuse sclerosis to other pathological conditions it might be wise to keep in mind the contributions that have accumulated in the last few years concerning the production of areas of demyelination brought about in animal experiments by diets deficient in some vitamins. Among them we may recall the work of R. Stern and M. Findlay,⁵² C. Voegtlín and C. Lake,⁵³ E. F. Gildea, Kattwinkel and Castle,⁵⁴ Zimmerman and E. Burack,⁵⁵ in whose opinion following a lack of antineuritic vitamin B, areas of demyelination were found not only in the peripheral nerves, but also in the spinal cord, in the pons, and in the cerebrum.

In experiments with deficiency of vitamin B, Hughes, Lienhardt, and Aubel,⁵⁶ in pigs, chickens and cows, produced impaired vision, incoordination and spasms related histologically to demyelination in the spinal cord, optic nerve, and sciatic nerve.

We also must keep in mind with due consideration the last experiments of Weil and L. Crandall⁵⁷ concerning lesions of the liver through the ligation of the pancreatic or colledocus ducts which procedure resulted in a process of demyelination and necrosis in the white substance of the brain and more so in the periventricular areas. The importance of the liver functionality seems every day to come more to the foreground because of the possibility that a toxic agent which might act primarily on the liver may impair the detoxifying capacity of such an organ and allow toxins originating from our normal intermediate metabolism to reach the blood circulation and eventually damage the central nervous system.

As ultimately the final diagnosis of a neurological condition rests with the histopathological investigation, I feel that from this angle no clear differentiation is possible between the lesions described in human diffuse sclerosis and the ones reproduced experimentally with potassium cyanide. This statement may imply that from the histopathological standpoint many conditions clinically labeled with various names may ultimately be reclassified within the boundary of diffuse sclerosis, (encephalomyopathy or encephalomyelitis) with a qualification as to their possible etiological factor. It may also follow that very possibly the conception of diffuse sclerosis as a clinical entity will have to be abandoned and the condition considered as a syndrome or end result of various pathological conditions among which original general infections and toxic processes may both play an important role.

The work which I am presenting deals with the experimental reproduction of a toxic encephalomyopathy (diffuse sclerosis) with one particular toxic substance, a possible product of our intermediary metabolism. It is hoped that further experimental work will be able to substantiate the protean origin of diffuse sclerosis by finding other factors capable of determining the pathological and as much as possible the clinical picture of such a disease.

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STATE HOSPITAL DIETARIES*

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Interest in State institution dietaries is perennial. Reference to early reports of the State Commission in Lunacy shows that the matters of food supplies and hospital dietaries were among the first of the major problems considered by the commission. Reference likewise to the early minutes of this conference shows frequent and emphatic discussions on these subjects.

I make no claim to expert dietary knowledge but I have a lively and legitimate interest in the subject. In January, 1905, I entered the service of the Department at Manhattan State Hospital when Dr. E. C. Dent was busily engaged in improving the food service by the establishment of a congregate dining room, then a new idea. Dr. Dent rightly believed it to be one of the very important means of adding to the comfort of patients thus promoting recovery. Dr. Dent was succeeded by Dr. William Mabon, at one time commissioner; also much interested in hospital dietaries and for a time chairman of the committee on dietary.

During this same period I was also associated with Dr. Charles W. Pilgrinn, whose interest in the subject is well known to members of the conference.

Since my transfer to the Albany office in 1911, I have visited the institutions repeatedly and have seen food service under varying conditions.

The State Commission in Lunacy was established in 1889 and in 1893, the Department adopted a dietary worked out by Dr. Austin Flint, a distinguished American physiologist. Some years' experience with the Flint ration showed that in some particulars it was more liberal than necessary. The commission, therefore, in 1897, engaged Prof. W. O. Atwater, one of the best-known food experts of the time to visit the hospitals and study actual conditions. His findings embodied in the tenth and eleventh annual reports of the Department summarized one of the most exhaustive studies that has ever been made of the subject. The demand for these reports containing his conclusions and recommendations has long since ex-

* Read at Quarterly Conference held in Albany, March 15, 1923.

hausted the generous editions which were the custom at that time. The work was so thoroughly done that with comparatively minor changes, the Atwater ration is the basis of that in use today.

The first handbook of the State Commission in Lunacy was printed in 1899 and the handbook for the following year contains the first sample dietaries under the Atwater ration which are now available. They are worthy of study at this time.

A committee headed by Dr. Mabon after careful study about 1910, recommended slight increases in the allowances for eggs, milk and sugar and increased the fruit allowance. In recent years these items have again been increased and the allowance of meat reduced.

The next important work of the committee on dietary was around 1916 and 1917 when Charles S. Pitcher, secretary of the committee and then steward at Kings Park, in cooperation with other stewards and superintendents, made valuable studies which resulted in setting up a standard portion for service; did much to promote the elimination of waste and pointed out the loss resulting from a too-prevalent practice of overcooking certain meats and vegetables. We were then in the difficulties of the war period where with insufficient and inadequate kitchen help, necessity for substitution of foods, the very high prices and other war problems, the service of food became a tremendous problem and inevitably retrograded to a greater or less degree.

In the meantime a system of purchase had been evolved from individual purchase of unstandardized supplies by each institution, to a system of joint purchase of staples on standard specifications prepared with the assistance of the best expert advice obtainable, deliveries being checked by comparison with standard samples, chemical analyses, etc. It is of interest now to read the early discussions in the quarterly conferences showing the extreme reluctance of the superintendents to approve the joint purchase of such a staple as flour even by a committee composed of fellow superintendents.

Some years ago it was felt that the results obtained from the flour purchased on standard New York State specifications were not as uniform as we had a right to expect. T. E. McGarr at that time

was able to secure the cooperation of several commercial bread bakers who studied formulae in use at the several institutions and made suggestions which were eventually embodied in a standard formula which gave excellent results and is in use today.

Ideas regarding methods of serving food have changed. In the early days it was urged that each ward should have its own dining room in order that a homelike atmosphere might be maintained. As institutions increased in size the difficulties of delivering the food to many small dining rooms in a palatable condition became so great that experiments with a large congregate dining room were undertaken. Later experience led to the development of a central dining room and kitchen unit around which ward buildings could be grouped and patients taken to their meals. More recently a cafeteria service has been developed which will be discussed somewhat more in detail later in this paper.

For some time the present commissioner has felt the need of a supervisor of food service and secured the consent of the Governor and the Legislature to establish such a position. The Department of Civil Service held an examination which resulted in an eligible list but among those who could be reached for appointment there appeared no candidate who seemed outstanding enough to warrant a trial in the position.

Complaints regarding food service in institutions are about as old as the institutions themselves. One naturally tires of food prepared in large quantities and even those who live at exclusive hotels soon complain of the monotony of the bill of fare. In times past such complaints have resulted in investigations with more or less publicity and consequent distress on the part of relatives of patients.

I have been told that prior to the transfer of the New York City institutions to the State in 1896, in one investigation it was demonstrated to the satisfaction of the press that the beef fed the lions in Central Park Zoo cost more per pound than that served to the lunatics on Ward's Island. Whether the lions actually received better beef, or whether their caretakers paid more for the beef than necessary, was not brought out so far as I have information.

An investigation of the entire State hospital system was under-

taken by the department of efficiency and economy 20 years ago because of charges involving purchase and quality of food. The prolonged and expensive investigation resulted in the commissioner of that department appearing before a session of this conference and stating publicly that on the whole the institutions were well managed and that the charges were found to be without substantial foundation.

For many years it has been part of my duty to handle the correspondence of patients. Recently Walter L. Hutchins has assisted in this work. We have both noted that for the past few years the number of patients' letters received is much reduced. Complaints of detention we shall always have but complaints regarding food which formerly were quite common are now rare. With Mr. Hutchins' assistance I have checked the patients' correspondence for the past six months and in that time have received but one complaint regarding food in State hospitals. In fact, occasionally we now have letters from patients speaking in terms of praise of the improvement in quality and variety of food and in service.

Now, I do not mean to infer that this reduction of complaints and number of letters, is due entirely to the improved food service. I do think that contented patients are not so likely to write letters. Important factors in promoting such contentment beside the food service are: Quite broad use of occupational therapy; physical training; better and more frequent entertainments; substantial reduction in overcrowding; improved facilities for comfort which new construction has made possible; and more sympathetic and skillful care because of better trained physicians, nurses and attendants.

Last year a study of food service was made by a young dietitian, at one of the up-State hospitals. Her report was generally favorable. She made certain comments and suggestions, one of which was an improved form for reporting weekly dietaries. This revised Form 95-Std., has been adopted and it is urged that all the hospitals put it into use immediately.

The results of examinations of dietaries submitted during 1932 were embodied in two circular letters. These related to patients' dietaries only. These studies showed that hospitals frequently pro-

vide special diets or extras for reception, surgical, acute, medical and tubercular patients. In addition some of the hospitals set up special dietaries for infirm patients and the majority provide extras for working patients, usually meat dishes for breakfast and supper. One hospital provides lunches in mid-forenoon and mid-afternoon for working patients.

Any criticisms of the present dietary service must in justice be prefaced by the remark that no department of institutional activity is more persistently followed up by the staff and in none is there greater effort not only to maintain but to improve existing standards.

With the above explanation, I offer certain criticisms:

I question the value of retaining special dietaries for working patients, notwithstanding the antiquity of the practice and its widespread prevalence today. I do not believe that steaks, chops and other heavy meat dishes are necessary for the morning meal of employees or any other persons. I believe breakfast meat dishes should be limited to eggs and bacon, one egg rather than two if served with bacon, and an occasional serving of sausage or hash during the cold weather.

There is a tendency to begin cooking food too soon and to dish it in containers long before it goes to the table. I have seen steaks being broiled for employees two hours before the meal was to be served; such steaks regardless of quality of meat or skill in cooking will be unpalatable when served. Several years ago I saw hot macaroni stewed with cheese and tomatoes being dished up for service, at three-thirty in the afternoon with a certainty that it would be stone cold when served for supper at five o'clock. These are extreme examples of a condition altogether too common. The shortest practicable interval between completion of the cooking process and service on the table should be required.

There is a tendency to serve too large portions, particularly to employees and in officers' dining rooms.

Not infrequently in visiting a central kitchen serving both patients and employees, one will find perhaps half of the kitchen personnel and of the range equipment, including most of the oven space, devoted to preparation of food for say two hundred em-

ployees, the balance of the facilities being employed in preparation of food for say twelve hundred patients.

Where conditions will permit, I believe it will be more satisfactory if specific personnel and range equipment are set aside for preparation of employees' meals.

There is considerable need of better coordination of dietaries for patients and employees so that available range space may be used to the best advantage. If employees are to have roast meat for dinner, there is very little or no oven space available for preparation of that meal for patients. This can be met by serving the heavy meal to employees at night when roasts are desired or by other planning of use of range space. Patients very seldom are given roast meat because of lack of oven space and steam cooked meats, whatever the claims for the merit of this form of cookery, are certainly not as palatable as oven-roasted meats. With careful planning, roasts could be started in the steam ovens and transferred to the range ovens when hot and cooking has commenced. Furthermore, patients occasionally could be served cold oven-roasted meat rather than being limited to stews, boiled, fried and steam-roasted meats. Range ovens frequently are not used to full capacity all day. They will be overcrowded to prepare the noon-day meal and perhaps unused all afternoon yet the same night you will find boiled beans served to patients. These same boiled beans could have been placed in baking pans in the ovens and served in a much more palatable form. This is an example of what I mean by better use of available range space.

In addition consideration might be given to having some kitchen employees assigned to another shift so that range ovens could be used for roasting meats to be served cold or reheated for serving and for baking beans, puddings and the like.

Inasmuch as the bakery ovens are always hot I suggest the possibility of using these for roasting meats, baking beans, potatoes and other baked dishes during the hours they are not in use for bread and rolls.

There is room for some improvement in the planning of menus so that potatoes and a potato substitute, such as rice, beans, macaroni, hominy and farina, will not be used as a second vegetable at

the same meal. This would not preclude their use in salads or desserts.

The use of milk as a beverage might be reduced and the surplus used to cream vegetables and cereals, and to make desserts more palatable. Milk as a beverage should of course, be available for the sick, infirm and tubercular patients.

I believe a small increase in the sugar ration, the fruit allowance being reduced accordingly, would permit a greater latitude in preparation of desserts. Sugar gives high food value at small cost and is especially valuable in making other foods more palatable.

It is believed that greater use can be made of special and hot breads as extra dishes for breakfasts and suppers. Toast for breakfast is a large order, but enough can always be prepared to serve part of the patients, and by following a rotation, all who care for it, could have toast, say once a week. Variety of breads adds attractiveness to any menu.

The serving of potatoes boiled in their skins is wasteful and adds much to the disorderliness of tables. Furthermore, fried, mashed or creamed potatoes or potato salad permit easier service of standard portions.

Salads provide a medium for serving raw lettuce, cabbage, celery, apples, etc., shredded or diced, giving variety and adding valuable elements to the diet. To be palatable these must be carefully prepared and, before serving should be chilled. Portions should be small.

Plain boiled cereal is served at practically every breakfast in each hospital. Its use as the main dish for supper also is altogether too common, indicates poor dietary planning and should not be permitted except an occasional supper of corn meal mush or boiled rice with syrup or milk which is palatable and generally well liked by patients.

In some cases bread is sliced and distributed long before the meal is served and is dried out and stale when the patients reach the table. So important an article of food should be served in the most palatable condition. It should be kept covered with a damp cloth after slicing and distributed just before the patients are seated, or better still where possible, when the main dish is served.

Butter can often be dispensed with for dinner if gravy is available and the amount saved will help out in serving hot and special breads and as a dressing for vegetables.

Kitchen and dining room workers are prone to take short cuts, use stereotyped dietaries and methods of preparation regardless of effect on quality of food and service if their own ease and convenience are promoted thereby.

The matter of employment of patients in large kitchens warrants careful consideration. Perhaps a few patients can be employed to advantage in the preparation of vegetables and in scullery work, but there are instances in which it would appear that the patients are doing work and taking responsibilities for which employees are being paid.

For the administrative heads of the hospitals and for the great majority of patients cafeteria service offers many advantages, some of which are: It provides opportunity to offer a choice of foods without service difficulties; insures service of food at all times hot and palatable as when prepared; greatly reduces waste; provides an economical way of utilizing left-overs; guarantees each patient adequate food and time to eat it; and because the system permits centralization of preparation and service of food, the superintendent can more readily place responsibility for failure; at the same time it promotes contentment, provides a ready means for habit-training and development of self-control and so has a distinctly therapeutic value.

Among the disadvantages are that for the best results rather expensive equipment and especially designed buildings are desirable, but as an offset decidedly less dining room space is required. The savings in this item probably would justify scrapping many existing kitchen and dining room arrangements. Facilities must be provided to handle a continuous flow of patients both to and from the dining rooms. Some kitchen and dining room employees may object to the longer period of active duty in serving meals and the closer supervision possible under this system and may not be very cooperative in making it work at maximum efficiency. Cafeteria service will not care for all patients. Provision must still be made for bedside trays, for special diets, for infirm patients too

feeble to leave the ward and for actively disturbed and conduct disorder types of patients. Furthermore, cafeteria service develops its full advantages only when patients can be grouped in large units of several hundred each for meal service.

The most frequently heard objection among institutional people to the cafeteria service is the question, "Would you like to eat all your meals in a cafeteria?" and the answer obviously is "no." The question as put, however, does not cover the point at issue. The real question should be, "If you have to live as a patient in a State hospital, would you prefer cafeteria or table service as it actually exists in the institutions?" To those who have seen and had experience with both types of service there can be but one answer in the great majority of cases.

It is an axiom that those engaged in the preparation and service of food will have unlimited helpings of the choicest foods available regardless of the qualities or quantities provided for the general population. This problem, which is inherent to the table service system, because those so employed must obviously eat at a time other than the regular meal period, can be entirely eliminated with cafeteria service where, because of the longer period when meals are available, those employed in preparation and service of food can be required to take their places in the regular line and be served as is the general population.

I make no claim to having in this discussion brought out any new point and I anticipate there will be disagreement with some of my conclusions. Frankly there is opportunity for such disagreement because these are matters on which there can be honest differences of opinion. Factors which are controlling in one institution may have little or no application in another. For instance, potatoes are a much more important and staple article of diet in the up-State territory than they are in the metropolitan centers. Types of patients, institutional traditions, quality of employees available, local supplies, tastes and habits of patients, all are important factors which in varying degree affect the general situation.

It is my hope that some of the things I have brought out may be helpful to institutional heads and those engaged in the preparation and service of food. I believe there has been marked improvement

in this during the 28 years of my service in the Department. I believe further there is opportunity for improvement in every institution without adding to the cost and in some cases with a probable reduction in expense but I am confident that the one who 28 years hence, in 1960, reviews these problems as I have tried to do in this paper, will arrive at some of the same conclusions. I hope he may record even greater progress than we have made during my time of service, but I am sure the interest then will be as great and the problem as pressing in one form or another as we find it is today. In other words, I can close as I began by saying, interest in State institution dietaries is perennial.

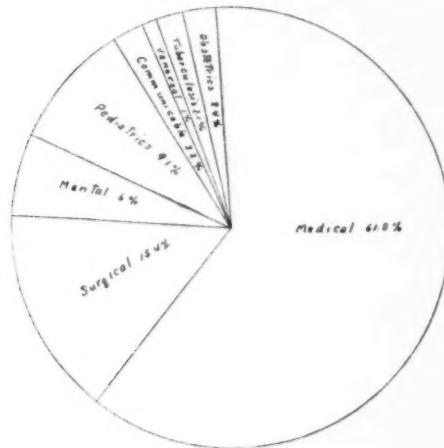
THE PREPARATION OF NURSES FOR COMMUNITY SERVICE

BY CLARA QUEREAU,
SECRETARY, STATE BOARD OF NURSE EXAMINERS, ALBANY, N. Y.

The curriculum, prescribed by the New York State Department of Education for use in registered schools of nursing, does not at present include required experience in the care of the patient who is mentally ill. Yet it has long been recognized that the nurse who has had special preparation in mental hygiene is more alert to the mental reactions of patients. She has a clearer understanding of the significance of the variations of human behavior and is better qualified, because of her knowledge of human psychology, to give the needed help and direction to patients and their families. The emphasis placed on this need in the course of the student nurse educated in a general hospital has resulted in more requests for affiliations than can be provided. The *immediate question* which we are facing is how we can meet this need. But our *ultimate goal* is to determine how we can give this experience to all nurses graduated. Many other changes must be made in the present curriculum if the type of nurse needed for satisfactory community service is to be produced. As we hope that the mental hospitals will have a larger share in the future than they have had in the past in the preparation of all nurses for community service, I would like to explain in some detail the work we have been doing on the revision of the curriculum.

In the early consideration of the problems involved in the revision of the curriculum for schools of nursing it was deemed that something more was needed than merely increasing the required minimum number of hours up to the level in vogue in the average school of nursing in the State. Complaints against the nurses and nursing service seemed too widespread to be caused only by those schools which fell below the average. The complaint in general was that the nurse was not meeting community needs in nursing. Too often the implication was that she *would* not do it—inquiry brought forth the query as to whether or not she *could* do it. These two implications required investigation before the point of attack and correction could be decided upon.

GRAPH 1. ESTIMATED COMMUNITY MORBIDITY—PERCENTAGE OF CASES



Sources of information:

Public health reports.

Department of Health, Vital Statistics.

"Public Health in New York State," Health Commission Report.

Studies of Committee on Cost of Medical Care.

Sixty-fourth Annual Report of State Board of Social Welfare.

"Community Sickness Survey—Rochester, N. Y.," Public Health Report—Reprint No. 326, 1926

"Sickness in Essex County," Reprint from New York State Journal of Medicine, Nov. 1, 1929.

"Sickness in Rural New York," De Porte.

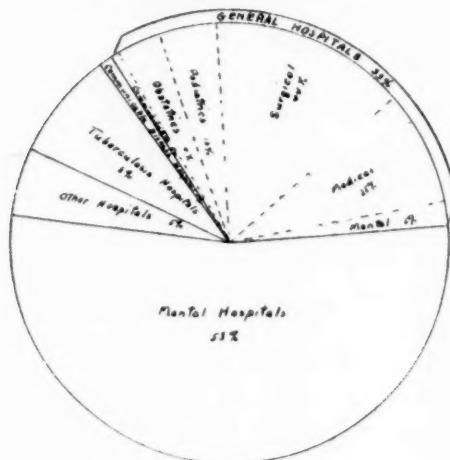
"Some Recent Morbidity Data," Stecker, M. L.

"Health Census of Chelsea Neighborhood," Metropolitan Life Insurance Co.

"Hospital Service in the United States," Reprint Journal of American Medical Association, 1931

"Public Health in the United States," Moore, Harry H.

GRAPH 2. ESTIMATED DISTRIBUTION OF DAYS OF HOSPITALIZED ILLNESS ACCORDING TO
TYPE OF HOSPITAL—WITH ANALYSIS OF ILLNESS IN GENERAL HOSPITALS
(IN MAJOR CLASSIFICATIONS)



Based on information derived from:

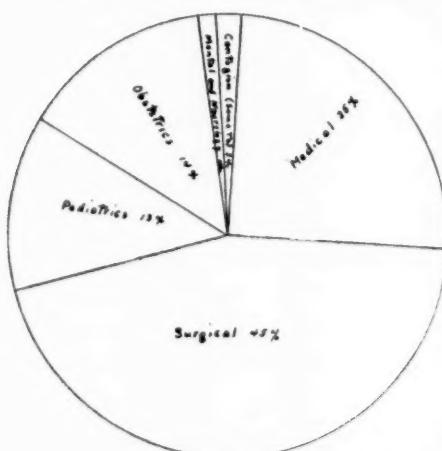
Annual Report of New York State Board of Welfare.

Annual Report of New York State Department of Mental Hygiene.

Annual Reports of Hospitals having registered schools of nursing.

Data for year 1931.

GRAPH 3. PERCENTAGE OF CASES ADMITTED AS REPORTED IN ANNUAL REPORTS TO THIS
DEPARTMENT, GENERAL HOSPITALS, REGISTERED SCHOOLS



Data compiled from annual reports for the year 1931 made to our office by 120 general hospitals in this State which have registered schools of nursing.

GRAPH 4. DISTRIBUTION OF DAYS OF HOSPITAL CARE OF PATIENTS ADMITTED ON MEDICAL,
SURGICAL, PEDIATRIC, OBSTETRIC, CONTAGIOUS AND MENTAL AND NERVOUS
SERVICES, GENERAL HOSPITALS, REGISTERED SCHOOLS



Data secured from annual reports for the year 1931 made to our office by 120 general hospitals in this State which have registered schools of nursing.

GRAPH 5. CLINICAL EXPERIENCE OF STUDENT NURSES IN REGISTERED SCHOOLS OF
NURSING IN NEW YORK STATE. BASED ON 495 RECORDS FROM 100 SCHOOLS
CHOSEN AT RANDOM

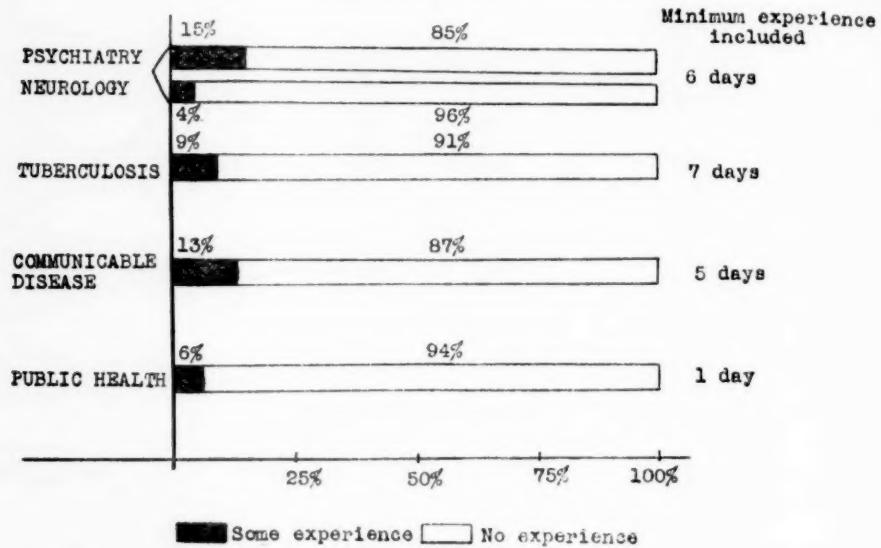


Data secured as indicated from the final summary records of students who were candidates for the licensing examination in 1931.

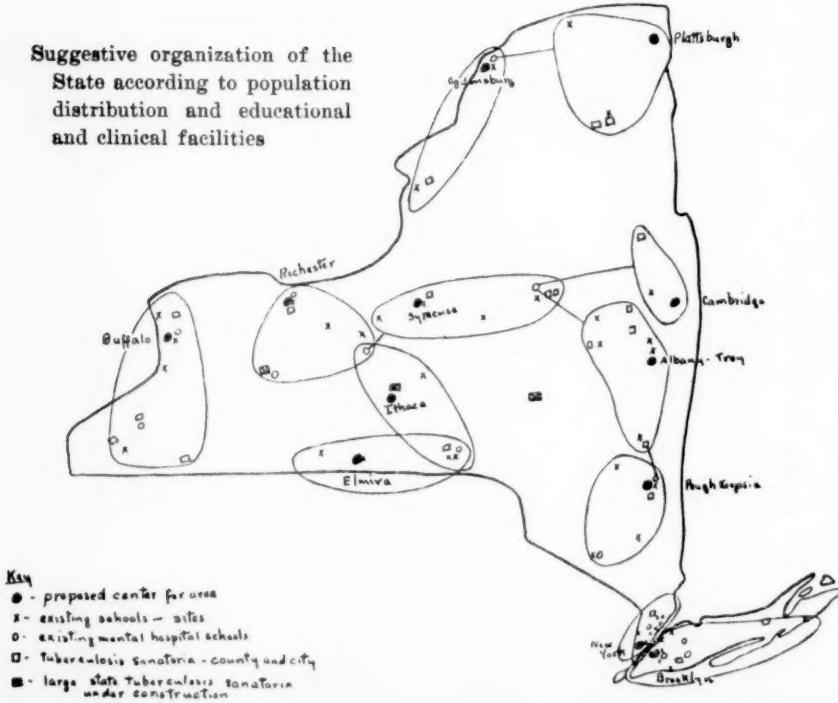
* All other experiences include:

Psychiatry, Tuberculosis, Communicable, Public Health, Social Service, Out-patient, Administration, Pharmacy, Laboratory, Pathological, X-ray, Unspecified, Therapy, Physio-, Hydro-, Occupational.

GRAPH 6. PERCENTAGE OF EXAMINEES OF 1931, GRADUATES OF GENERAL HOSPITALS IN NEW YORK STATE, WHO HAD SOME EXPERIENCE IN PSYCHIATRY, TUBERCULOSIS, communicable disease or public health nursing



Suggestive organization of the State according to population distribution and educational and clinical facilities



If the nurse today is not meeting community needs, then one of two things must be the explanation—either the material (the student) to be worked upon will not permit the desired results to be achieved, or the experiences (the curriculum) provided to achieve the results are not the correct ones to accomplish the results, or it may be that both are at fault. To know what the curriculum should be it is necessary to know what it is hoped to do, what situation it must meet, and what materials it has to work with. Only after these are known and considered can a fitting curriculum be made.

To determine what community needs are, a survey of community illness was made through the use of published morbidity reports of the Metropolitan Life Insurance Company, the committee on the cost of medical care, special reports of the New York State Department of Health, the New York State Department of Mental Hygiene, the recent report of the New York State Health Commission, various local community studies, public health nursing services, nurses' registries, annual reports of hospitals, annual reports of schools of nursing and various other sources. From these sources a fairly comprehensive idea was obtained of the types of illness present in the community as a whole, and the proportion of these various types. The total illness situation was compared with that part of it hospitalized in the institutions having schools of nursing and it was found that these hospitalized portions did not represent the community illness in variety of types of illness, nor in proportion.

Study of the student clinical experience shows an almost exact duplication of the hospital situation. If the hospitalized illness is at variance with that in the community and the student experience is a duplication of the hospitalized illness, then it follows that in so far as student experience is concerned the student is prepared for the hospitalized illness but not for general community illness. If she is called upon to meet some community illness after graduation, which is not included in the hospitalized illnesses, she has only a very sketchy background of theory to fall back upon. Either she refuses to meet the need through consciousness of her own inadequacy (which she rarely explains) or she tries to meet it and makes a poor job of it. Study of the private duty and public health phases

of community nursing shows a constant presence of such illnesses as tuberculosis, mental and nervous diseases, venereal and communicable diseases, yet we graduated over 2,500 students in 1931 only one-eleventh of whom had had any experience in tuberculosis, one-seventh in mental and nervous nursing and one-eighth in communicable disease nursing. These experiences varied in length from a few days to much over a year. Over fifty per cent of these graduates will work outside of hospitals attempting to meet community needs. No means have been found to determine what percentage of these somewhat-prepared nurses have gone into hospital work and what percentage into work outside hospitals.

It would seem with such widespread need for these services that they should be included as basic requirements for every nurse. There does not seem to be a dearth of such experience to make this requirement impossible of attainment although some of it may not be usable under present circumstances. If there is acceptance of the fact that such experience is a necessity, ways and means for making the available experience usable will be found even as ways and means are found for achieving other things that are desired. If the number of students admitted is curtailed to the needed supply for the State, the attainment of the experience could be fairly easily accomplished.

The allotment of time to theory and practice throughout the nursing course is such that for the schools of the State as a whole 56 per cent of class work is done in the first 4 months and the remaining 44 per cent is scattered over 27½ months. The question of pedagogical soundness of such a distribution comes to mind immediately, particularly in connection with the crowding of the first 4 months.

Statements were sought from patients as to whether or not their needs were being met, from registrars as to whether or not their observations made them believe the supply of nursing service to the community was satisfactory, from the community nursing organization, such as visiting nurse association, as to whether or not they were able to meet the needs of the community, and from the private duty nurses as to whether or not they felt satisfied with their ability to supply the needed service.

Two hundred and fifty questionnaires were sent to homes where nurses had recently been employed. These homes were selected by registrars in about 25 sections of the State and represented different types of communities. The selection was made on the basis of a likely intelligence in evaluating the nurses and nursing service and the possibility of constructive criticism. The questions were built around known complaints and were made sufficiently general to permit the answerer to state his observations and opinions as he or she saw fit. A letter accompanied each set of questions explaining the purpose of the entire study. In order that absolute freedom of comment could be felt, means of identification were eliminated. The comments that have been returned to date have been given in excellent spirit with a very evident interest and desire to help. The comments seem to point more particularly to personality and culture than to technical background. Following are some quotations taken from the returns: "I do not think the recent graduates have sufficient training in special work. Even with the best intentions, they are apt to be noisy and a little careless as to technique owing to constant 'floor duty.' The standards of training schools seem to vary a great deal. The last nurse I had in my house was the most unsatisfactory I ever employed." "This nurse has her mind entirely on some personal affairs. Left within an hour or two after the patient died without washing utensils, arranging the room or even inquiring if she could do anything for me. She was so unsympathetic that I was glad to have her go. She seemed to lack interest in the case. She was competent when an emergency arose and I imagine might do her work well in a hospital under supervision. The other two nurses I had who were unsatisfactory were pleasant and kind, but were dismissed by the doctor, one for not being competent and the other for disobeying his order. With these exceptions all my nurses have been excellent and most kind and considerate." "I will say this, however, that a general refinement which can only come from 'background' is (I think) more essential even than general education, desirable as that is. The training in her duties is, of course, the foremost essential of all and goes without saying, I suppose. Just one comment on personality I would make as the most important to both patient and fam-

ily: Talkativeness is abhorrent to both, and a pleasing responsive, yet not loquacious behavior is next to efficiency." "Most nurses that I have had experience with, and I've employed many, should have been taught table manners. The one place they are far from their ease is at the table." "This is the second time within a year we have needed the service of a nurse. The first girl was far from satisfactory. Nurses in general rarely understand preparation of food or arrangement of trays. They seldom are able to utilize the food on hand in the house necessitating the purchasing of extras. The middle class man cannot afford this extra expense." "It would seem to me essential that nurses should understand that an atmosphere of calm and quiet accomplishment of their tasks is necessary." "*A nurse must have several fundamental characteristics in order that she be successful. She must have common sense, an interest in the humanities and the qualifications of a lady.* Therefore, *more careful selection of trainees might raise the tone of the entire profession.* It has been rare in my experience, however, to have patients offer any unfavorable criticism of nurses. Of course, a doctor always tries to send a nurse that he thinks will fit the case."

"*There are many individuals in the nursing profession, as in all professions, who have no right to be there and who should have never been allowed to have studied nursing.*"

About 25 registrars have supplied analyses of the types of cases cared for by private duty nurses and have submitted comments on their observations of the degree of adequacy of the graduate to fulfill the needs of the community she is supposed to serve. Some of their comments follow:

The graduate shows: "Lack of preparation for work in the home. Lack of ability to adjust to the family of the patient. Lack of understanding of human behavior under stress of circumstances. Lack of ability and willingness to fit into the home. Lack of interest in food and its relation to the patient's recovery. Lack of willingness and knowledge as to how to prepare patient's food. Lack of appreciation of racial differences. Lack of training in communicable, tuberculosis and mental and nervous diseases and fear of them. This fear extends to the family of the nurse as well. Lack of understanding of nursing ethics." Most registrars stated that the

patients' comments in requesting change of nurses dealt almost entirely with the personality of the nurses.

Deficiencies as stated by public health executives: "Lack of understanding of the patient's background, the reason for his irritabilities and apparent refusal to follow the doctor's orders." "Lack of intelligent insight into mental and social hygiene." "Lack of an intelligent understanding of health facilities in a community." "Lack of ability to transfer hospital technique in a practical way to the home." "Inadequate preparation in practice and theory in the care of communicable disease and mentally-ill patient." "Insufficient initiative and human interest on the part of the nurse possibly due to military system of discipline still in vogue in some schools. The product may be a good machine but at the expense of enthusiasm and devotion to her profession." "Lack of knowledge about communicable disease control in the home."

In an effort to examine and put down in written form the current emphasis in health work which is sometimes expressed as considering "the whole patient," an outline was formulated which attempted to consider the whole patient in relation to his disease condition. In the outline it was attempted to include all of the things that should be known in order to give intelligent nursing care in any particular disease condition—in other words, all phases of the whole patient such as social, economic, emotional, mental and other factors which have direct or indirect effect upon his welfare. It was believed that if this outline (or revisions of it) in each disease condition to be studied were broken down into its ultimate information and required skills, it would supply the entire items of material to be included in the curriculum. These numerous items would in turn be organized into particular courses embracing the essential content of each course.

This then, is the general plan which is being followed in the revision of the curriculum. But as we have progressed with this work, the need of determining the type of school in which this instruction might be given is very apparent. The constant increase in the number of nurses registered in the State also makes it necessary for us to determine the number for which clinical resources of the State may be and should be developed for teaching. In the last decade

the registered nurse group has grown from 12,000 to nearly 40,000, an increase of 220 per cent in contrast to a 21 per cent increase in population. The facts gleaned from unemployment studies have been included in consideration of the problem. Of the total number registered 30,000 report that they are attempting to earn a living by engaging in nursing. In order to keep this figure constant (and it is probable that fewer nurses could well supply community needs in nursing) we should graduate about 1,500 nurses annually. At the present time we are turning twice that number into the field each year. Therefore, any new plan of education of nurses which might reduce the number graduated would not be a handicap from the standpoint of nursing service to the community.

During the past year 14 schools of nursing have closed in this State and undoubtedly others will follow. The reasons given for this action are that boards of trustees recognize the over-production of nurses, and they find the cost of maintaining a well balanced course in nursing to be an economic liability for the smaller hospitals where wide affiliations are necessary.

There are other indications also that a new type of school may be evolved in the future. There is a general tendency on the part of hospitals now maintaining schools to establish connections with colleges or universities. It is significant also that opinions of many groups concur in advocating the transfer of the control of nursing education to institutions whose primary purpose is education.

The Association of American Medical Colleges has gone on record in its report of November 15, 1932, in stating that "Nursing education should be more generally and more closely integrated with other educational fields. Nursing schools should be made parts of existing universities and colleges and the curriculum in nursing should be made to conform to college standards with all that is implied in this statement as to requirements for admission, type of teachers engaged, equipment and facilities available, requirements for advancement and graduation." Dr. Horner, assistant commissioner for higher education of the State Department of Education, has said: "Extend the academic and fundamental training as well as the practical experience of the nurse beyond the narrow confines and the particularistic needs and aims of any ordinary

hospital and recognize that the universality of human illness requires resourcefulness, adaptability, and readiness to meet new situations by able nurses. Carried to practical ends this would mean that few hospitals afford opportunity for all the services which are essential to the well-rounded training of every nurse. The educational institution directing the training of a nurse ought to be free to send her where she can get the practical training it desires her to have. This would mean, of course, that nurses would no longer be trained by hospitals to meet their individual needs but would be educated to care for the sick under any and all circumstances." . . . "If I had my way about it (and Dr. Horner emphasizes that this is personal opinion only) I would gradually close the majority of existing hospital training schools in this State and try to find a way to interest established colleges and universities in taking responsibility of nursing education. I would have the certificate or diploma of graduation come from the college or university responsible for the course of study and would expect the college to make terms with hospitals for the practical training desired for its students. The nurses in training would then be regarded as other college students are regarded and would pay tuition when pursuing academic courses and such profit as accrued from their services in hospitals during their apprenticeship would go back to the educational institution directing the course of study." . . . "The time has come for nursing education to be put upon a sound educational and professional basis. It can only be done by an acknowledgment on all hands of what is inevitably best for the future."

Similar opinions of many other educators might be quoted if there were time.

Following out this idea of establishing university schools in various parts of the State it is found that certain areas seem to suggest themselves. A school organized in connection with a college or university in a given area would send its students into hospitals in that particular district according to the educational need of the student. The general hospitals would be used for experience in medical, surgical, obstetric and pediatric nursing. Institutions that provide exclusively for patients suffering from communicable

disease, mental and nervous disorders and tuberculosis would be used for experience in these types of nursing. Contact with public health organizations would also be given in order to give the nurse a better understanding of all community resources for prevention as well as cure of disease, and in order to prepare the nurse for the care of the sick in their homes.

A diploma course, which would be completed at the end of a three-year period, might be given as well as a degree course, if the student wished to return to the university and complete the required academic work. The first two semesters of the professional course would be devoted to the science background decided upon as necessary to nursing. Nursing procedures would not be taught during this college residence period. Those who dropped out would not be in a position to trade upon the gullibility of the public as being prepared to give nursing care. Students could transfer and be acceptable for transfer with credit from this year of science work if they found that they did not wish to continue to major in nursing. The student would have a reasonable period of time to absorb the science instruction which is now crammed into a four-month period. The instruction would be of superior quality and the hospital which now bears the expense of maintenance and education of students during this period would be relieved of this burden.

It is possible that the institution of such a plan might result in distinct advantages to the mental hospitals. No allowance would be paid to affiliating students. At the present time I believe students in the State hospital schools are paid approximately \$350,000 annually. As the maintenance cost of one student is estimated at about \$30 a month and the average allowance paid is \$60, it would be possible to provide for three affiliating students for the amount which it now costs the Department to provide for one. The overhead cost of teaching the preliminary course and all subjects of the curriculum would be eliminated. Students admitted through the university would be a more selected group and elimination of poor material would take place before the students were ready for affiliation in psychiatry. By this means also a larger group of young women would be taught the general principles of the care of the patient.

who is mentally ill. Where affiliations in psychiatric nursing have been provided, the principals report to us that their students return with an entirely new point of view toward the patient. They are more alert and sensitive to the mental reactions of the patients, a more sympathetic understanding of human nature has been developed, personal mental stability has been deepened, they have been taught the physical, functional and social causes of mental disease and the emphasis on prevention makes these nurses conscious of the part they can take in directing to the proper community agencies patients who show signs of mental disease.

It, therefore, seems safe to assume that under such a system a larger number of nurses would become interested in the care of the mental patient. There would be a need for the development of "added experience" or "post-graduate courses" in order to prepare nurses for supervision and teaching. This need could undoubtedly be met without difficulty. The unemployment situation which will probably continue to exist for some time to come should add to the possibilities of working out such a plan successfully.

In presenting the material contained in this paper I wish to emphasize that in searching for a solution of the problems which we are now facing in the education of nurses these proposals are only suggestive. However, educators with whom this theory has been discussed seem to feel that it could be carried out successfully. We do not expect that this Utopia could be reached in a few months or even in as many years. But we are attempting to determine how the school of nursing of the future should be built in order that we may lay sound foundations for this structure and then work consistently toward the achievement of that goal. The reason for the presentation of the results of our studies to this group is due to the need of the cooperation of the mental hospitals in developing the type of nurse needed for general community service. We are confident of your interest and desire to work with the Education Department in developing any new type of course in nursing which will result in the production of nurses well prepared for professional practice.

BOOK REVIEWS

Psychopathology, Its Development and Its Plan in Medicine.

By BERNARD HART, M. D. Second edition. Cambridge University Press, London, 1929.

In his preface to this, the second edition of Dr. Hart's well-known book, the author states that no material alteration has been made in the body of the book. A new chapter on "The Conception of Dissociation" has been added. This subject was treated at greater length in his Goulstonian Lectures delivered at the Royal College of Physicians of London on March 11, 16, 18, 1926 (Published in *The Lancet*, March 20, April 3 and 17, 1926). The "Conception of Dissociation" was originally published in the British Journal of Medical Psychology.

Dr. Hart's book should be read, not only by psychiatrists, psychologists, social workers and others interested in psychological medicine, but also by medical students and medical practitioners, who are often too ignorant of the genesis and manifestations of the various forms of mental deviations. The work is not a text book on the various forms of mental disorders, but a very readable and instructive work on certain phases of psychopathology.

The new chapter on "Dissociation" is an extremely interesting one. In it Dr. Hart has set forth the views of various authorities, as well as his own conception, of this phenomena. The author states "The aim of the present paper is to consider the nature of Janet's conception of dissociation and of the subconscious, to elucidate the difference of *plane* which marks off these conceptions from those of Freud and to discuss the relationships and oppositions which exist between them. The hypothesis that mental elements may exist outside the limit of ordinary consciousness can be traced far back in the history of philosophy and psycho-pathology became dissociated from philosophy." He goes on to remark that "In another of its forms, the hypothesis assumed that mental processes exist outside consciousness, which are radically different from those occurring within consciousness, but which are able to modify and affect the cause of the latter. This notion is to be found in Kant and Schopenhauer and is elaborately developed in Hartmann's "Philosophy of the Unconscious." In the reviewer's mind, an outstanding defect in Freud has been his claims of priority and reluctance to acknowledge the debt he owed to those who were responsible for his psychological and medical education. This is said with reluctance on the part of the

reviewer, who is well aware of the importance of Freud's contributions to the understanding of human behavior.

Hart further says "Janet's conception of dissociation was not designed to explain mental processes in general, but was formulated rather to describe a limited class of phenomena, particularly those met with in hysteria and hypnosis. Janet brought definite evidence that mental elements and processes could preserve an independent existence, apart from the main stream of consciousness. He showed, for example, that the sensations arising from the anaesthetic limb of an hysterical patient had not been destroyed, but were merely cut off from the central consciousness. Physiologically, the effects of a pin prick on the anaesthetic area were still able to be conveyed along the nerve and spinal tracts but were not registered in consciousness, as a painful sensation. That sensation in the anaesthetic limb was not abolished could be seen in the freedom from accidental injury the limb enjoyed, and also through means by which the dissociated streams could be tapped, e. g., hypnosis and automatic writing. Dissociated streams of mental elements could also be seen in the amnesias of hysteria and somnambulism. Somnambulisms were the result of a dissociation which severed the stream of consciousness and permitted the stage to be occupied by a new stream having no apparent link with the main stream of consciousness. This new stream contained memories of which normal consciousness had no knowledge, but which, when somnambulism was absent, could be elicited by hypnosis or automatic writing. Fugues and double personalities were more complicated examples of dissociation. Janet finally concluded that all the phenomena of hysteria were to be regarded as instances of "dissociation." He saw in "dissociation" the essential feature of this disorder. As dissociation of the same type was evidently a character of hypnosis, Janet naturally followed Charcot's lead and held that hypnosis was an artificial hysteria."

"Janet's conception cast a flood of light upon some of the problems of hypnosis and hysteria, but he does not explain the reason for the splitting or how it actually took place. Dissociation, is for Janet, the separation en masse of a number of mental elements from the greater mass of elements which constitute the totality of the mind." Hart objects to this view as it cannot be squared with the observed facts. To begin with, the same material may form part of each of the dissociated portions, e. g., each of two dissociated personalities may possess the same memories. Dr. G. W. Mitchell has pointed out that an hypnotic consciousness may be aware of the whole range of the patient's experience, including the content of normal consciousness, but no knowledge whatever of the experiences belonging to the hyp-

notic consciousness. Dr. Mitchell asserts "It cannot be too often repeated and insisted upon, that we have absolutely no knowledge of any such isolated material." It is not cut off on all sides from the structure of the mind, but only deprived of those associative connections which would permit its emergence above the threshold of consciousness. Janet's conception of "dissociation" also fails in explaining the phenomena of trance states and cases of co-conscious double personality. In the latter there is a contemporaneous co-existence of two personalities, one of which is aware of, but entirely independent of, the mental activity of the other." Here the author gives a short abstract of a case of double personality. Dissociation, the author states, does not separate the mind into pieces, it only produces more or less independent, acting functional units. Each such unit comprising material which may be peculiar to itself, but may just as well form a part of a number of other functional units. The distinguishing character does not lie in the material of which it is composed, but in the set or pattern.

"The spacial conception of Janet and the functional conception of dissociation are radically distinct from one another in their angle of approach to the phenomena which they seek to describe."

"The spatial conception regards the dissociated consciousness as built up by the accretion of elements. The simplest example being those cases where only a few such elements are dissociated, e. g., hysterical anaesthesia. The more complex cases are produced by the addition of more and more elements to the dissociated mass, to which the term "personality" may reasonably be ascribed."

"The functional conception on the contrary, starts at the other end. It lays stress on the synthetizing activities which brings the elements together and regards this as the essential feature, rather than the mere agglomeration of elements. Instead of seeing in the personality the final result of an usually extensive agglomeration, it assumes that some synthetizing agent comparable to personality is present in every case."

This conception, Hart believes, may be applied to certain cases of multiple personality, in which the personality shares the same memories, but are sharply distinguished from one other by the diversity of their characters and activities. Similar considerations apply to those fugues where there is no subsequent amnesia, but where the behavior during the fugue is totally foreign to that of the normal self.

The author thinks it is even justifiable to extend this conception to the changes observed in cyclothymia and the manic-depressive psychoses. It might be applied again to the interpretations of hallucinations, to those conditions where elaborate delusional systems exist, without affecting the be-

havior of the patient, and even to the logic-tight compartment mechanisms observed in everyday life. It connotes a common factor, i. e., a lack of integration throughout the whole series though varying in degree from minor examples to the complete splits of double personality.

Dr. Hart objects to Janet's notion of dissociated ideas existing in a wholly isolated state, that they are not cut off on all sides from the structure of the mind, but only deprived of those associative connections which would permit its emergence above the threshold. It is dissociated from the supraliminal consciousness, but is still an integral part of the mind beneath the threshold. He remarks, "instead of regarding dissociation as to the splitting of conscious material into separate masses, as it must be regarded as an affair of gearing, the various elements of the mental machinery being organized into different functional systems by the throwing in of the appropriate gear, or, if it is desired to render the situation in psychological terms, we have the notion of engrams and neuronic patterns developed in Dr. R. G. Gorgon's recent work "Personality." With this conception, the difficulty in understanding how the same material can belong to several personalities, or how there can be a non-reciprocal amnesia between the normal and hypnotic consciousness is largely overcome. The spatial conception regards the dissociated consciousness as built up of accretion of elements, while the function conception starts at the other end. It lays stress on the synthetizing activity which brings the elements together and regards this as the essential feature, rather than the mere agglomeration of elements. The divisions of the mind thus far mentioned are divisions of consciousness. The dissociated stream is made up of the same stuff as the remainder of consciousness and its peculiarity lies in the fact that there is a lack of complete integration between it and the remainder of consciousness. Janet's subconscious comprises those instances of dissociation where the lack of integration is such that there is a lack of mutual awareness between the two streams, but in every other respect the processes concerned have all the attributes of consciousness."

"Freud's unconsciousness is a division along an entirely different plane; it was created by him in order to explain the facts of consciousness." The subconscious of Janet is a description of *phenomenal facts*, while the unconscious of Freud is a conceptual affair, an imagined entity, created to *explain* phenomenal facts."

Hart objects to the Freudian conceptual construction of the unconscious because it cannot be demonstrated by observation and experiment, and also for the reason that the elements of which it is composed have no existence on the phenomenal plane. Furthermore, it does not conform to Karl Pear-

son's scientific formula: First, the observing and recording of the phenomena observed; second, its classifications, and third, the construction of laws which will explain the phenomena. Janet's conception of dissociation belongs to the second step while Freud's conceptual construction belongs to the third step. Hart emphasizes the fact that the doubling of personality is a phenomena capable of being directly observed, while the unconscious of Freud is a conceptual abstraction. Moreover, while it is possible that one dissociated personality may exert some influence upon another, it is not obviously the same sort of influence as that which Freud conceives to exist between the unconscious and the conscious.

The author also remarks that Freud's division of the psyche into ego and id is a device of a conceptual and not of a phenomenal kind, and therefore has no direct relationship to the division formulated by Janet. He admits, however, that Freud's conceptual hypothesis has value in explaining the dynamics of double personality. The author also notes the remarkable absence of studies of double personality from the literature of psychoanalysis. Psychoanalysis moreover makes practically no use of the conception of dissociation of which multiple personality is only the most striking example. This attitude is, of course, due to the fact that the accent in psychoanalysis is not on the symptoms observed on the phenomenal plane, but on the dynamics of the situation.

Kardiner states that the fundamental difference between the schools of Janet and Freud is that the former is a descriptive psychiatry whose aim stops with explanations, whereas the latter is a dynamic psychiatry whose purpose is to reconstruct the methods of nature.

Hart agrees with this in so far as to the distinction of *plane* is concerned but not in the interpretation of the nature of that distinction. The author would like to obtain from the psychoanalysts a dynamic interpretation of the facts which Janet and his school have observed, especially in the field of dissociation and of double personality. The reviewer sympathizes with Dr. Hart in his desire to have these phenomena explained according to Galton's formula for scientific research but doubts that the operations of the mind can be recorded and interpreted according to the scientific laws governing physical phenomena.

GARVIN.

The Main Afferent Fiber Systems of the Cerebral Cortex in Primates.

By STEPHEN POLIAK. 301 pages. University of California Press, Berkeley, Cal., 1932.

With the present emphasis on the more functional type of experiment, fundamental anatomical studies form rare exceptions in scientific publications. It is, therefore, with a sense of admiration that one finds such a careful student of neuroanatomy as Dr. Poliak writing a volume concerning a purely anatomical study of the main afferent cortical connections in the monkey. As the author states, many neurologists speak as if the main problems of the neuroanatomy of the cortex have been entirely solved. This view, of course, is quickly shown to be quite erroneous. The author starts with the assumption that a study of the fiber anatomy of the cortex is invaluable for an understanding of the material basis of the psychological and physiological reactions and, to be more explicit, that "any attempt to disclose the nature of cortical processes—that is, the fate of the incoming impulses from the external world—must commence by tracing the afferent paths traversed by these external impulses on their way to the cortex." As illustrative of the main afferent fiber paths in the cortex of the monkey, the author chooses the somato-sensory path, the auditory path, and the visual system. The main portion of the studies is based upon studies with the Marchi stain of acute degeneration of the myelinated fibers to the cortex following accurately placed subcortical lesions of the three systems. The other portion of the work is concerned with Nissl studies of the geniculate body following cortical lesions of various portions of the visual cortex in an attempt to correlate localized areas in the cortex with corresponding cells of origin in the geniculate body. All the main typical lesions and the resulting histological changes are carefully described in the text and the book contains a series of 70 colored drawings showing the course of the degenerated fibers as shown by the Marchi method. It is a very careful and painstaking work made by a thorough student of cerebral architecture. In light of the traditional vicissitudes of the Marchi stain the author is to be congratulated on his very fine results.

The essential findings resulting from the study of the degenerations following lesions of the somato-sensory radiations and lateral nuclei of the thalamus tend to show that the radiation is entirely ipsilateral, that it comes from both the dorsal and ventral portions of the lateral nuclei, and that the fibers are distributed not only to the post-central convolution as might be thought, but also to the entire pre-central convolution and also to a considerable portion of the entire parietal lobe. The densest point of distribution, or what the author calls the focal zone, is found at the bottom of the central sulcus. The termination of those fibers embrace in whole or in part

Brodmann's cortical areas, 1, 2, 3, 4, 5, 6, 7, 23, 24. In addition to the author's findings concerning the general distribution of the somato-sensory radiation, he has found that the radiation comprises very definite segments arranged in a very definite order. He feels as a result that the entire thalamo-cortical radiation may possibly have in addition a functional organization, that is, that for each one of the cytoarchitectural fields there may be a certain anatomical laminae of fibers with a plane perpendicular to the long axis of the hemisphere and the thalamus and finally that each one of these integral parts of the fiber system may be related to a certain quality of somato-sensation. He feels that like the visual afferent system there is a somato-topic or a special organization of the afferent somato-sensory system resulting from similar requirements of function. All of his work tends to show, in agreement with the findings of the experimental physiologists, that the pre-central "motor" area is at the same time a receptive-sensory region.

Concerning the auditory system which the author next investigates, he finds that the destruction of the medial geniculate body or the auditory radiation produces degeneration in the most ventral portion of the internal capsule with a spreading fiber fan ultimately reaching the white matter of the superior temporal convolution to which apparently the auditory radiation as such is entirely confined. The entire radiation was found to enter the cortex of the upper lip of the first temporal convolution or the ventral wall of the sylvian fossa. Very few fibers reached even the convexity of the superior temporal convolution. No other portion of the temporal cortex received fibers from the auditory radiation, or in fact any other afferent fibers from the subcortical nuclei. The most richly supplied zone of cortex was a small area in the posterior corner of the Sylvian fossa where a structure possibly similar to the transverse temporal convolution of Heschl was seen. This the author considers to be the nuclear or focal zone of the entire auditory projection cortex. He feels likewise that there is a very definite spacial relationship of the entire central auditory path up to the cortex and that this spacial relationship of the cortical points in reference to certain points of the cochlea may quite adequately explain the phenomena of hearing in terms of the theory which he presents. The auditory radiation like the somato-sensory radiation was found to be entirely unilateral with no fibers crossing to the opposite hemisphere through the corpus callosum. Any possible crossing of either of these systems must, according to the author, occur at lower levels in the brain stem.

The visual system considered by the author at considerable length is a field in which he has contributed valuable work. Here, in addition to a

study of the distribution of the medullated fibers of the visual radiation as determined by the Marchi stain, he has studied the effect on the cell groups in various portions of the lateral geniculate body of smaller or larger portions of the occipital lobe. His essential conclusions after a thorough anatomical analysis would seem to be that there is a very definite anatomical relationship, point for point, between areas in the lateral geniculate body and areas in the visual cortex which speaks for a definite anatomical basis for functional localization in the visual cortex, that the entire connections of the lateral geniculate body are with the cortex of the same side, and that the cortex of one side receives fibers only from the geniculate body of the same side and does not receive fibers from the geniculate body of the contralateral side. The peculiar position of the cortical protection of the macula make possible an adequate anatomical explanation of some of the apparently inconsistent findings of human pathology, such as the retention of "central" or muscular vision in hemianopic field losses.

The author, on the basis of the findings of the projection of the retina in the cortex, gives an apparently very adequate scheme of visual losses following lesions in certain portions of the occipital lobes.

In addition to the fine anatomical description of the three systems which the author gives, he devotes a short chapter to a discussion of the relationships of anatomy and function and their biological significance and finally presents another short chapter concerning the future investigation of the cerebral cortex in which he feels essentially that more accurate surgical delimitation of experimental lesions must be performed especially on the higher primate type of brain before adequate knowledge of the anatomical and as a result the physiological processes of the cortex can be understood.

It is unfortunate, in a sense, that Dr. Poliak did not mention more of the behavior of the animals in which the lesions had been made. With the exception of some of the animals in which lesions of the visual apparatus had been made, no descriptions were given of the animal behavior. One may justly question, it would seem whether the term somatic-sensory radiation, for example, which is a purely physiological term, may be accurately applied to a radiation, the anatomy of which only has been studied. It would undoubtedly have been of great value if the degeneration of the fibers had been correlated with some sort of sensory dysfunction. However, it is gratifying to see that the question of the anatomy of the cortex, which apparently has been considered as properly understood, again intrigues an able worker, especially when work is now being performed to a much greater extent upon the brains of primates. The book is a very able anatomical exposition with fine drawings and ably written. It would appear to be

indispensable for anatomical and physiological workers with the primates' brain and undoubtedly will form a very fundamental contribution to the understanding of primate brain anatomy. As the author himself concludes, "Certainly a systematic experimental investigation of all the chief anatomical, physiological, and psychological problems of the brain on a large scale and with a broad view, according to a pre-arranged plan, using primates, would give results amply compensating the labor, the time, and the expense involved."

S. EUGENE BARRERA.

Managing One's Self. By JAMES GORDON GILKEY, M. A., D. D., Pastor of South Congregational Church of Springfield, Massachusetts, Professor of Biblical Literature at Amherst College. Cloth, pp. 238, \$1.75. The Macmillan Company, New York.

A short biographical sketch on the jacket of this book states impressively that the author averages one thousand in his Sunday morning congregations. The wonder is that the number is not far greater if the sermons are as pointed and helpful as these talks on over-coming personal difficulties.

Doctor Gilkey was greatly impressed by the truth of Dwight L. Moody's confession that he had had more trouble with himself than any person he knew. Surveying the broad field of personality difficulties, the author chooses ten besetting sins, one or more of which can be recognized in any of us, and delivers an inspiring sermon on each.

Some of the interesting problems considered are "Locating One's Spiritual (i. e., psychic) Burden," "Limiting the Load on One's Mind," "Controlling One's Moods," "Learning to Work Under Pressure," "Maintaining One's Composure" and "Making a New Start in Middle Life." The last chapter is most timely for the millions of middle-aged persons who have to readjust themselves to a new start in life due to the exigencies of the present economic depression.

Perhaps the chief virtue of these talks is the fact that in addition to the general inspirational type of advice anticipated in a popular work on mental hygiene plus a distinct theological flavor, there are very practical and concrete suggestions which can be applied by anyone honest enough to recognize these faulty mental habits in themselves. Altogether the book is a good one to place in the hands of the ordinary person who is not making a very satisfactory adjustment to life's problems. If they do not have sufficient insight to recognize the applicable chapters, one might mark them plainly with a blue pencil.

R. W. BOHN.

Twenty-one—The Adventure of Becoming a Man. By ERDMAN

HARRIS. 207 pages. Ray Long & Richard R. Smith, Inc., New York.

This book is a series of sermons addressed to young men around the age of 21. This is the name but the scope of the book covers a period in life much before 21 and many of the points are applicable to those beyond that age. Many questions are answered for the young men and it can be recommended as a standard text similar to "The College Life of Dean Briggs."

Until he is 21 a young man is considered a minor from a legal point of view. This is defined and explained at great length, and the rights, privileges and responsibilities are gone into with some detail. When an American youth becomes 21 he automatically becomes entitled to full rights of citizenship. No ceremony is held like that of the puberty initiatory rituals of the primitive tribes. In our civilization the training is gradual and is carried on in the home, school and community. Of course at 21 some men are not ready for what is expected of them. In order to advise the embryonic citizen how to meet life's problems one would have to take into consideration the rapidly changing conditions of modern civilization, namely, the automobile, telephone, radio, airplane—all have contributed in changing the conduct of our everyday affairs. Certain generalities may be made so that the individual can equip himself to meet the problems of life as they arise. No fixed rules can be given but the traits which one attains through his development is important.

The question is asked: "How old are you at 21?" This sounds absurd. Nevertheless there are certain factors which must be taken into consideration. These may be considered from the chronological, physiological and anatomical points of view. The mental age and I. Q. are also factors in determining the maturity of an individual. Most important of all, however, is the emotional age. While a person may be 21 in years, emotionally he may be a child.

Chapter III, "Can You Choose Your Job Wisely?" Although we are passing through a period of economic stress and it may become necessary to assume whatever employment can be obtained, nevertheless one should not allow himself to drift into any life occupation aimlessly. When a life job is finally selected there should be borne in mind one's ability to perform the duties required, his interest in the work and the marketability of his services as well as the amount of enjoyment he will derive from such work. It is not wise to enter into occupation unless one is happy doing it. The usefulness of his work must be considered also.

The next chapter is entitled: "Do You Know How to Amuse Yourself?" Only a very few of us become genuises who can afford to forage the delights

of social life and spend all our time at work. A certain amount of pure play unadulterated by work is necessary. In other words we must have avocation as well as vocation. A great difficulty in present-day life has been given the name chronic spectatoritis. This means that most people today are dependent upon others to afford them amusement rather than taking part in it themselves. While it is reasonable to expect that one must necessarily be a spectator some of the time yet he should not cultivate this as a prime motive in absorbing his leisure. Such recreations which have a "morning after" should be avoided. In this is included intoxication, games of chance, etc. When a person becomes such that he can stand his own company and not be reliant upon some one else for amusement then he may be mature in this respect.

The author next asks: "Are You Worried About Your Personality?" The feeling of inferiority is touched on very briefly and the relation to the feeling of inferiority by sensitiveness, over-compensation, etc., is explained. Then there is an exposition of the quackery employed in advertisements in which are promised short-cuts in the development of personality. He quotes as an example: "They laughed when I sat down at the piano" . . . the author adds that perhaps they were still laughing when he got up. Also, "His big opportunity . . . his little speech before the executives was worth \$10,000 a year to him." He states there are no short-cuts in the development of personality but rather that it is a by-product of one's everyday life —his interest in people and in his job.

He next asks: "Can You Get Along with Others?" The first place where one must make an adjustment is in his family life. Of course there should be a happy medium. Being tolerant of others does not necessarily mean that one should be a "boot-licker" and attempt to get along with everyone. It may become necessary at times to offend some people.

In the next chapter, "What Do You Know About Sex?" the author deplores the wild usage of the terms of psychoanalysis by people who are not acquainted with its actual work. He gives a vivid description of sex. At this point the author may incur some criticism because he seems to have gone to the extreme in advocating the education of young children in sexual matters. While it is generally agreed that proper sex education should be given to children, still the impression is gained that he has gone a little too far.

He then discusses the selection of a wife, how to spend one's money, and finally he advocates that the young man should strive to be mature in his philosophy of life. He should have definite aims and be able to discipline himself.

The book is commendable.

HAROLD H. BERMAN.

The Nature of Human Conflicts. By A. R. LURIA, translated by W. Horsley Gantt, pp. 431, \$4.00. Liveright, Inc., New York, 1932.

Professor Luria's book is of interest as a Russian reaction against the psychology which analyzes human activity into small elements, and against that of the more rigid conditioned reflex type. The author states his point of view as follows: "The basic feature . . . (of behavior) is a functional inequality of the differing systems entering into it. . . . It is clear that the significance of these in the system of organization is not always the same, and the whole activity of the organism can be understood only as a dynamic system. . . ." Both the mechanists and those who "connect the principles of organization with a vital structure" are in error.

Furthermore, the claim that a measure of and a description of the mechanism of affect has been obtained, will interest psychiatrists. So, also, will the statement printed on the cover that the book "offers an experimental approach to the laws by which human behavior may be integrated and controlled." It might be well to point out here that the only excuse for this very general claim is the material of the last chapter. In this last chapter, modifications of a simple rhythmic coordination of the right hand are reported, and speech is held to be the pre-eminent factor in transforming the diffused reactions of children and hysterics into organized reactions.

In justice to the author, we should add that in chapter IX he states that he does not hope to "give a fundamental and exhaustive foundation for the understanding of disorganization and neuroses."

Professor Luria feels that the classical method of studying affect by describing the physiological symptoms is futile. He, himself, employed the time-honored word association reaction technique plus simultaneous recording of tremor of the left hand and of voluntary pressure of a pneumatic bulb by the right hand. The resulting kymographic tracing "discloses the dynamics of the (behavior) process." The "dynamics of the process," i. e., inhibitions of reaction, yielding of the higher regulating mechanisms to the motor, etc., were, however, actually deduced in a priori fashion from the situation or from the word association reaction. On the basis of this analysis, these curves indicating voluntary pressures were later interpreted as indicating the occurrence of affect and of conflict.

Thirty students undergoing an especially critical examination, 109 taking an ordinary examination, 50 criminals immediately after arrest, and 4 subjects with hypnotically induced conflicts were studied. Of the second and third groups above, 55 and 27 cases respectively were selected for statistical analysis. No reason is given for the exclusion of the other half of

the cases in each group. More long reactions and motor disturbances were found before the examination and before trial or confession.

Thirteen normal adults were given an association series including words from two different languages in order to produce conflicts. The appearance of disturbances in the kymographic curves "proved" that conflict occurred. Interestingly enough, the statement was made in the chapter on "Affect in Criminals" that emotions produced by psychologists in the laboratory were "emotional reactions to a partial situation . . . that never revealed the affect peculiar to the personality." Yet the laboratory reactions obtained by the author himself as a result of the interference of a foreign language with the mother tongue, "showed us the mechanism of the affective reaction."

Artificial compulsions were induced hypnotically in ten subjects (three reported), attempts were made to "displace the conflict" in aphasics by showing them clear and unclear pictures, and several cases of hysteria, neurasthenia and fatigue were studied. These cases are pointed out as being merely the extremes of "labile" and "stable" types, the hysterical and neurasthenic being the "labile." In direct contradiction to this, the author states at the end of Chapter X that types do not actually occur among normals and that "our descriptions represent not stable types but only tendencies . . ."

Tapping by one neurotic boy is analyzed without reference to contemporary work on reciprocal arm motion and tapping that indicates that similar disturbances may occur in normals.

The following statement is made as to the cause of neurosis. "The inability to isolate the conflict from the motor sphere . . . is one of the chief psychophysiological mechanisms, and from this soil there may quickly spring a neurosis." Isolation of the conflict from the motor sphere, however, may mean only that no symptoms appear. It seems peculiar logic to attribute causal relation to the appearance of symptoms.

It may be the difficulties attendant upon translation and publication in a foreign language which causes the impression of vague statement in the first part of the book. But there are also a general lack of organization in the presentation and certain very definite and important inconsistencies. We have already mentioned the use of "types" and their later repudiation. As another instance of inconsistency, ". . . withholding of the activity is the chief mechanism of the affective processes" in Chapter VI while in Chapter X, ". . . affect basically changes the structure of the reactive processes, destroying the organized behavior and *converting the reactive*

process into a diffused one." (Italics ours.) It would almost seem that the author has forgotten his previous conclusion!

Chapters X and XI deal with the development of the "functional barrier," i. e., whatever process prevents the immediate motor response to stimuli and thus allows reactions of choice and voluntary activity such as that used as a measure by the author. The usual modern view is taken that this "functional barrier" is a process of development not only of co-ordination in the infant, but also of the speech mechanism and of the effect of cultural factors. Infants were studied, and Piaget is quoted to show that the child differs in his thinking from the adult.

As we have stated, Chapter XII treats "The Control of Behavior" and points out that rhythmical pressure coordinations in infants, hystericals and a case of paralysis agitans were aided by cues for each unit of the act. For instance, the hysterical gave himself rhythmical signals in order to be able to execute a slow, controlled right-hand pressure.

And finally, ". . . speech is a pre-eminent factor as an auto-regulator of behavior" and helps to transform primitive diffusion into organized forms (of reaction). "Conditioned optical symbols should play the same organizing role as the activity of speech does."

The book will probably appeal to the uncritical reader on account of its euphonious terminology and its many charts and tables. On careful examination, however, its chief value will be seen to consist of some new word association reaction data, the attempt to obtain a measure of disorganization of a voluntary reaction system, and to produce experimental neuroses by the use of hypnosis in order to study the condition.

T. W. FORBES.

Growing Up. By KARL DE SCHWEINITZ. 111 pages. The Macmillan Company, New York.

This is the twentieth printing of Mr. de Schweinitz's book which is evidence in itself of how well it meets a long felt need of doctors, social workers and parents. The development of life from the time of conception through the "growing-up period" is directly traced. Comparative illustrative material is chosen from the life history of other animals. The illustrations are delightful and the entire content is handled in such a way that it is both satisfying and interesting.

No doubt this book will continue to be a classic of its kind.

HESTER B. CRUTCHER.

Man as Psychology Sees Him. By EDWARD S. ROBINSON. 376 pages. Price \$2.50. The Macmillan Company, New York, 1932.

This book, which was a recent selection of the Scientific Book-of-the-Month Club, certainly merits that distinction. Dr. Robinson has succeeded in doing what several writers have attempted to do within the past three or four years; he has placed before the public a readable, interesting, accurate and authoritative statement of the present status of scientific psychology. Professor Robinson's presentation does not suffer from a theoretical bias towards behaviorism, structuralism, or any of the other -isms of psychology. Rather, he presents the facts and theories in a well-organized fashion, so that, after reading this book, the interested and intelligent reader should have a fairly accurate notion of what scientific psychology is about. Furthermore, the style is informal and attractive and holds the interest of the reader even when occasional difficult material is being presented.

This book is divided into two parts, one of which is called "Man," and the other "Psychology." The chapter headings for the first part are, "Motives to Action," "Heredity or Environment?" "Living and Learning," "What Is Thought?" "The Rational Man," "The Whole Man," and "Mind and Body." In these chapters Dr. Robinson cites recent experiments and recent illustrations to bring out his points. The discussion of the effect of heredity or environment in the development of the individual is particularly well handled.

In Part 2 the general field of psychology as a science is dealt with under the following chapter headings: "What Is Psychology?" "The Wares of Psychology," "Word Storms of Psychology," and "Psychological Revolution?" In these four chapters Professor Robinson sketches in bold outline the development of a science of psychology out of the philosophy of the nineteenth century. This outline is done largely in terms of the men who have made the science. The present battle of psychological cults, which occupies so great a place in the eyes of the general public and which has been such a blighting influence upon the development of psychology as a science, is well sketched and evaluated.

It is the opinion of the reviewer that this book of Dr. Robinson's should be available for every person who is working in psychology or using psychological methods in his work. It can safely be given or recommended to anyone who wishes to know what psychology is doing and has done. Unlike many academic psychologists, Dr. Robinson has given consideration to the theories and work of the Freudians and places this panel of knowledge in its relation to the greater study of the science of man and his behavior.

This is the book that many who are intellectually curious have asked for.

LANDIS.

The Blind in School and Society. By THOMAS D. GUTSFORTH, Ph. D., Instructor in Psychology in the University of Kansas. 237 pages. D. Appleton and Company, New York and London.

This book is a highly interesting contribution to a subject of which most persons have only superficial knowledge. It deals with the psychological and mental life of blind persons. It shows how the mind of a blind individual must accommodate itself to function so that the individual will be complete unto himself and the writer decries the efforts to make the blind appear to appreciate and visualize what the seeing appreciate. He does not approve of that phase of Helen Keller's instruction which led her to visualize and describe in an ecstatic manner various shades of green in a spring landscape. All too common is this form of education for the blind in the author's opinion.

The fantasy ideas of the blind are psychologically considered and described. A number of cases are discussed which represent mental mechanisms very similar to those seen in psychiatric patients. In the blind, the mental states arise from deprivation of an important sense and wish fulfillment phantasies in which the blind individual achieves riches, prominence in music and other successes, are common. Quite another mechanism is seen in the case of a boy who, in his phantasy, grabs a person by the heels, who had too solicitously helped him over the street and twirls him around his head and dashes out his brains. This was a recurring phantasy as well as one indulged in by a little girl who, while singing in church, sees the structure, which she had remembered when she had sight, fall apart and the roof crush most everyone except the narrator of the phantasy. Such trends parallel those seen in patients with dementia praecox, who are shut off from their fellows, not by blindness but by personality deviations.

Other chapters deal with verbalism, voice, and speech, the emotional life, sex behavior, aesthetic life and personality problems in the blind.

The book is valuable to those associated with problems of the blind and also to persons interested in mental functions and mechanisms. The writer's observations in certain ways seem to confirm modern psychiatric interpretations of certain mental mechanisms.

The author is an instructor in psychology in the University of Kansas. He evidently has had experience in institution work with the blind. He fittingly dedicates his book to Dr. Samuel Gridley Howe, a pioneer in this field 100 years ago, and a founder of the Perkins Institute for the Blind.

BROWN.

House of Refuge. By GRACE S. LEAKE. 298 pages. William Farquhar Payson, New York.

This is an absorbing novel woven around the life of a girl and her experiences both physical and psychological in a home for unmarried mothers.

One can scarcely conceive of a more drab and desolate institution than this "Home of Hope" nor can one imagine three such difficult personalities as the social worker, the matron of the institution and the friendly visitor who came to pray with the girls each week. There was a complete lack of understanding on the part of all of these people and, while no actual evidence of physical abuse except overwork was indicated, the tortuous life of the inmates of this home is vividly depicted.

The object of the book seems to be to plead for better understanding of the personality of the adolescent girl. It shows the necessity of having to deal with her, well integrated mature persons, instead of frustrated, emotionally starved individuals who have no conception of the emotional values of her experiences.

The book is cleverly written but is certainly no argument for social work as it is represented to be practiced. Furthermore, one is made to feel that the cardinal sin in life is becoming a "charity case." The unfortunate part of the book is that, while it is labeled a novel, it is so convincingly written as a human document, that the inexperienced person will probably feel that all matrons of rescue homes, all social workers and psychiatrists are similar to those depicted in the book. The great exaggeration to produce the effect which the author uses makes one fear that the book may result in damage rather than correction of the cause for which it is obviously written.

HESTER B. CRUTCHER.

The Psychology of Primitive People. By STANLEY D. PORTEUS, Ph. D. 438 pages. Longmans, Green & Co., New York.

The author indicates, in the preface of this book, that the first half of the volume "represents an attempt under the guise of a narrative of the expeditions, to make the reader see the life and habitat of the aborigines . . . and to help him realize how unique the Australian environment." This he does successfully and, in addition, in a keen analytic manner, he points out probable psychological factors underlying their daily life and generalized behavior. For instance, in Chapter 2, he shows how the customs of one tribe indicate that the significance of the aborigines' dances lies in the fact that they are a means of seeking self-expression and social approval; quite comparable to the white man's proneness to join clubs and other

social groups. Again, he indicates how, because of the peculiarities of the environment, the aborigine is still a magic-ridden man. This condition, the author believes, is largely a product of loneliness.

In another instance the author relates that the aborigines' idea of rewards is just the contrary to that of the white man. Instead of rewarding the individual for a dangerous and courageous deed after the performance of such, they always grant the reward beforehand.

On the whole, I felt that the author in this first part, in a vivid and excellent style, has made a most commendable contribution to the understanding of the anthropology, sociology, and psychology of primitive peoples.

Part two is written for a dual purpose. Chapters 12 to 17, inclusive, deal at length with the underlying psychology of the Australian social organizations, totemism, ceremonial observances and initiation. The remainder of the book "deals directly with the mental examination of the aborigines."

The basic thesis throughout Part II is the expressed feeling that many who rate these natives as having only brute intelligence fail to give sufficient credit for their progress in the face of the uncompromising nature of their environment. He states that many evidences of insight and excellent adaptation to most difficult situations were discerned.

In testimony thereof he proceeds to indicate how their practices and beliefs are not extreme forms of primitiveness. For example, their nakedness instead of being an indication of inferior intelligence is "but a condition partly of choice and partly of necessity." Again, geographic conditions which promote extreme isolation prevents the natives from profiting from the experiences of others. In a third instance, the author points out how their oligarchical government, rule of the elders, is an intelligent adaptation to a peculiar environment. Likewise the psychological bases for such practices as totemism, initiations, exogamy, and their apparently inherent improvidence indicate intelligent adaptation rather than a lack of it.

The final portion of the book is devoted to a report and an interpretation of the testing of the intelligence of the aborigines. The author expresses clearly his point of view toward such testing in the preface of the book. He says, "My conviction was that, to judge fairly of the intelligence of this people, I must also consider the evidences of their adaptability to their own peculiar environment." Hence one can understand why the author has dealt at length with the psychological bases of their social customs, organizations and habits of life.

In summarizing the results of the testing he states, "Considering their unfamiliarity with the test situation the aborigines' response to tests of prudence and planning capacity, discrimination of form and special relations

in test material familiar to them was little if any inferior to that of the whites. In tests scored on speed their performance rated low, mainly because working against time was contrary to their habit. In rote memory, they were particularly deficient when the test was an auditory one, less deficient, but still inferior when it was visually presented. They are not unintelligent but are certainly inadaptable to a civilized environment."

The reviewer found this a most interesting and enlightening production and is of the opinion that all who read it may get valuable hints for a better understanding of human nature as well as information relative to the status of the intelligence of a particular primitive people.

RALPH HORN,
State Normal School, Geneseo, N. Y.

Nurses' Production, Education, Distribution, and Pay. Report by the Committee on the Grading of Nursing Schools. 36 pages. Price 25 cents. Published by Committee on the Grading of Nursing Schools, New York City.

This interesting and illuminating study with its statistical material is well presented. It is a comprehensive report of numeral expansion and over-production of nurses, the unemployment situation and the shortage in certain fields, with the reason for such shortage. It discusses the higher educational standards, shows why educational requirements should be raised and production lowered, greater care used in selection of students, and what phases of nursing should be given more attention in training of nurses.

It surveys the nursing situation from every possible viewpoint. Just to glance through it is interesting, but to study it carefully would give one a definite understanding of what is wrong with the nursing profession.

It gives the picture of a profession in which 25,000 new members were added in the year 1930, and statistical data showing that the supply of active graduate nurses in the United States is increasing far more rapidly than the general population.

In the summary, the grading committee has in six short paragraphs made comprehensive the entire nursing situation.

It should be helpful to hospital superintendents, nurse educators, or others who are dealing with nursing education and nursing service.

HELEN V. CLUNE.

The Art of Behavior. By FREDERICK WINSOR. Boston, 1932. Houghton Mifflin Co.

A headmaster of a boys' school is in a particularly advantageous position to observe the development of the personality and to study its various manifestations in the field of behavior. If he combines his educational functions with a scientific attitude, a sympathetic interest and an alert intelligence, he can contribute no little to our understanding of human relations. Unfortunately all these desirable qualities are seldom assembled in one pedagogue.

The author of this treatise, head of an old New England school, is a worthy champion of our present moral code, which he confidently offers as a panacea for the ills of the world. Our troubles, he claims, are due to individual disregard of those moral and ethical standards which form the backbone of our civilization. Successful living, the good life, is the art of behavior which everyone should strive for. It can be attained only by a rigid self-discipline, an unswerving adherence to a set of principles. These are nothing more or less than continuous applications of the foundation of morality, the Golden Rule, to problems of everyday life. Truth, conscience, loyalty, altruism, self-sacrifice—these are its tokens. Really a very simple formula, as the author concludes on the last page.

Some very troubling problems are disposed of in rather summary fashion. That of instincts, for example. The author advises his readers to master them and tells them how, "By steadfastly refusing to respond to any of them, we can gradually build up such good control over them that we shall never be in danger of being carried away by any of them, no matter how strong."

There is little in the book that can be seriously objected to. The material is well organized, the writing is lucid, the ideas are universally accepted. The professional reader may be pardoned a sigh of regret, however, that in such a well-meaning work, the material was not more adequate, the writing less pedantic, the ideas not so far removed from life and its problems. The cloistered serenity of a library in a Concord preparatory school is hardly a suitable laboratory for the proper study of the art of behavior. But no doubt many good people will enjoy it the more for its detachment, its gentleness, its delicacy, its avoidance of controversial matter.

IRVING KNAPP.

The Healing Cults. By LOUIS S. REED, Ph. D., for the Committee on Costs of Medical Care. 134 pages. The University of Chicago Press, Chicago, Ill.

This interesting study deals with the groups of healers that are outside the medical fold. The so-called cults reviewed include osteopathy, chiropractic, naturopathy and allied groups, Christian Science and other faith healing. The significance of these cults is indicated by the statistics of their operations. The groups include 36,150 practitioners who annually receive a total of \$125,000,000 or more for their services.

The author discusses each group separately. He gives the factual results of his inquiries and sets forth the history, doctrines and claims of each cult. The several accounts are presented without prejudice and without denunciation.

The large following of the several cults indicates that they satisfy certain types of people regardless of the efficacy of the treatment given. Consequently, the cults have an important relation to medicine and to the problem of health preservation and promotion.

This book covers its field in an admirable manner and should be widely read.

POLLOCK.

Children Who Cannot Read. By MARION MONROE. 205 pages. 1932. The University of Chicago Press, Chicago, Illinois.

The author reports in detail a study in diagnosis and remedial instruction for cases of reading disability, carried out in connection with the Behavior Research Fund and the Institute for Juvenile Research. She describes logically her selection of cases and control, measurements of quantitative measurement including tests and statistical methods used, classification and graphical representation of errors, methods of remedial instruction, the remedial instruction and results for her group, and concludes with a group of typical case studies.

The book is of interest to anyone concerned with the diagnosis and remedial instruction of children who have failed to learn to read or whose progress in reading is not commensurate with their ability demonstrated in other school achievements. The somewhat complicated statistical methods used in the necessary quantitative diagnosis and measurement of results are of less interest to the classroom teacher than are the clearly outlined qualitative diagnosis and classification of errors with corresponding causes and remedial methods.

ALICE W. GODDARD.

Individualism. By HORACE M. KALLEN. 241 pages. \$2.00. Liveright, Inc., New York.

In a magazine article James Truslow Adams states that the "American system," which is based on traditional individualism, has been of immense importance in the development of the country and in bringing happiness. A correspondent in the "New York Times," commenting upon this statement, remarks that individualism is dying a stubborn death and that an attempt to inject new life into it is futile. What is needed is cooperation. An English author states that individualism is dead. Horace M. Kallen, the author of this book, former student of William James, associate of John Dewey, at one time lecturer in the New School of Social Research, New York, and writer of other volumes of psychological nature, makes an earnest plea for the return of this country to individualism.

He uses, as an example, the machine worker who performs just one part of a process. He states that this worker has no sense of accomplishment or completion. He fills in spare time with such entertainment as stupid movies, cheap books, and other unworthy diversions. Even the modern artist, who is an independent producer, suffers to the extent that his brushes, his paints, and his other materials are manufactured for him. Whereas, his predecessor made his own. Dr. Kallen is more concerned with the principles of individualism than with methods of bringing about its return in this machine age. However, he states that the manufacturer, the banker, the economist and the business man should have the necessary vision to comprehend the situation as it exists today.

An idea of the book may be gained from some of the chapter headings, as follows:

That industrialism depersonalizes all human relations in terms of ownership, management and employment. Corporations replace individuals; pecuniary considerations replace personal and material ones; ownership becomes absentee, a worker becomes a machine-part.

That industrialization has aborted "Americanism" as an ideal and has thwarted workers as individuals.

That modern society multiplies the opportunities and restricts the vocation of individuality, and that it manifests novel abilities and deficiencies as environment for individuality.

That fear, rage, love, the withdrawal of support, the hampering of movement and other innate psycho-physical responses underlie the need for freedom and security.

Finally, in conclusion: That the history of the United States is the history of an unremitting warfare in behalf of individualism as a self-con-

scious way of life, with some successes and many frustrations; that a loyal Americanism can consist only in transforming the modern establishments of the national life through the vision and in the spirit of freedom which are the traditions from the fathers.

That there may be disagreement with Dr. Kallen is certain but there is no question of his sincerity and depth of study of this subject. The author early came in contact with socialist and anarchist groups in an attempt to understand their objectives. Studies at Harvard followed and later a lectureship at Princeton, where too advanced views proved unacceptable. This book is the product of broad experience in social contacts between classes and groups.

BROWN.

A Critique of Sublimation in Males: A Study of Forty Superior Single Men. By PROFESSOR W. S. TAYLOR. 115 pages. Price 2.00. Genetic Psychology Monographs, Clark University, Worcester, Mass.

Psychoanalytic doctrines have frequently been criticized as unscientific. It is charged that some of the doctrines are accepted as valid without tests of their validity having been made. Perhaps some of the doctrines must remain as matters of belief; others will be subjected to thorough-going tests and as a result will stand or fall. The monograph before us has for its aim the examination of the psychoanalytic concept of sublimation and the testing of its theoretical and practical validity in young men. The first question raised in the study was whether complete sublimation occurs in healthy, active, intelligent men in their twenties and thirties. Contacts were made with 40 superior single men. These subjects were all of the type that might be said to be sublimating their sex urges by engaging in athletic, social and esthetic activities. The facts concerning their sex activities were obtained by the author, and the results were carefully tabulated and analyzed.

The data collected, although not sufficient to establish a general principle, did not lend support to the sublimation theory. In other words, it was found that the sex instinct was not sublimated but was dealt with by means of physical adjustment.

The study is an important contribution to psychological literature.

POLLOCK.

Desuggestion for the Attainment of Health, Happiness and Success.

By E. TIETJENS. Translated by Eden and Cedar Paul. Second edition. Pp. 593. The Dial Press, Inc., New York, 1932.

The book is written by one who claims to have overcome neurotic tendencies in himself, with the purpose of giving to other neurotics the benefit of his discoveries. The author holds in his introductory chapter that . . . "neurosis results from the excessive stimulation of an unduly sensitive constitution by disagreeable experiment . . ." He further holds that ". . . the modification of the pleasure-pain quality of ideas has two extremely important consequences . . . In the first place, neurosis disappears . . . In the second place, the powers of intelligence are notably intensified . . ." Again he sums up his doctrine thus: "Cease to fancy things which are non-existent or are entirely different from what you suppose—and you will achieve success. . ."

However, in order to achieve any practical results it is necessary for the reader to be "clear about all the details and thus secure conviction. . ." The remainder of the book is intended to clear up all the details and to secure thereby conviction on the part of the reader that things are not as he fancies them, but follow more or less the philosophy laid out by the author.

To this end Chapters 2 to 6 are devoted to a discussion of the origin of knowledge and its limitation. The next two chapters put forth the general thesis that the pursuit of pleasure is the "vital impetus of human beings." Chapters 9 to 12 advance the argument that Will is not really free and that the ultimate meaning of life is bound up in attaining of the "maximum pleasure for the greatest number." Chapter 13 deals with the method by which erroneous associations are formed.

The remainder of the book treats mainly the following topics: Repression, suggestion, our ideas of another's ego, honor and vanity, the sexual problem, judgments, self-knowledge, optimism, health and ideas, etc. The general treatment is persuasive in an attempt to get the reader to face facts as the author sees them.

What seems like an unnecessarily involved technical terminology (that of Richard Semon) is used, and discussion of the physiological and neurological basis of thinking and action is dodged as much as possible. Conscious wishes are attributed to lower forms when they exhibit tropisms. Unfortunately "experiments" mentioned by the author in his preface as proving his psychological laws, are not further touched upon.

T. W. FORBES.

The Psychological Effects of Menstruation. By MARY CHADWICK, M. D.

70 pages. Price \$2.00. Nervous and Mental Disease Publishing Co.

This is a practically new field for the psychoanalyst and it is evident that the author has delved widely in the literature on the subject of the effect of menstruation on the psyche of the menstruating woman. This comprises such subjects as mythology, folk-lore, primitive society and witch cults, as well as the psychology and physiology of sexual development, with the object of explaining in the light of Freudian psychology the behavior and the dreams and phantasies of women during menstruation. The investigation is very comprehensive and leads to seemingly endless ramifications, so that it is perhaps not surprising that the paths followed by the discussion are winding and maze like.

The statement of the synopsis is well ordered and is divided into: 1. Historical. 2. The Menstrual Cycle in Childhood. 3. The Adult Menstrual Cycle. The paper concludes with analytical description of two illustrative case histories which are well presented. It is asserted that primitive beliefs which are obsolete in the conscious mind survive in dreams and phantasies. The author dwells particularly on the analogy between the traits ascribed to witches and the witch-like behavior of the woman during menstruation. She follows other writers on folk-lore in the interpretation of primitive tribal customs, for example, the seclusion of adolescent girls in small dark huts symbolizing death and rebirth. She talks of the primitive anxiety and guilt due to bleeding, brings in familiar complexes on the subject of castration, mother-hostility, etc., and elaborates them. To be sure, at times she seems rather to be discussing the effect of the menstruating woman on her environment and she concludes. "It might have been the behavior of women during their menstrual period which made necessary the prohibitions and limitations imposed on them in early times." This type of reasoning with reversibility of subject and object is fairly common in psychoanalysis and seems to have been practiced by the ancients themselves, when, for example, the diet of the secluded female was limited not only because of its influence on herself but also because of the menstruating girl's influence on species of animals or fish whose flesh she might eat. The book, furthermore, contains statements and assumptions which may well tax the credulity of any but the devotee of psychoanalysis or of the White Queen who could by practice believe as many as six impossible things before breakfast. One might cite the assumption that one is born with memories of primitive lore; that resentment of the cutting of the umbilical cord is one of the earliest causes for hostility to the mother; that children have a menstrual cycle; that menstruation is continuous and a woman is always mens-

truating, a statement which contradicts the definition of the word. It is not especially surprising to find functional disturbances, such as, amenorrhea, dysmenorrhea and vicarious menstruation explained on psychological grounds and it does point to the desirability of further investigation of the frequent occurrence of amenorrhea in the psychoses. One cannot refrain from regretting that occasional incoherence and common grammatical errors should mar a good descriptive style.

SARA L. SMALLEY.

The Lame, the Halt, and the Blind. By HOWARD W. HAGGARD, M. D.
408 pages. Harper & Brothers, New York and London. 1932.

This large book, of over four hundred pages, amply illustrated by more than two hundred illustrations, many of them rare and ancient prints and cuts pertaining to medicine, is a definite contribution to public health and to the history of medicine. The book deals with many phases of medical history, told in an interesting form, through anecdotes, through reference to the lives of illustrious persons and to historical events. It is comprehensive in scope, dealing with medicine in ancient Greece and Rome, and in France, England, Germany, America, and other countries. It covers a period from the beginning of history to the present time.

In the course of the book many interesting occurrences and visitations of illness are interestingly dealt with, including the Dancing Mania, The King's Evil, The Canine Madness, The Black Death, etc. Lord Lister, Dr. Percival Potts, Roentgen, Laennec, and many other prominent physicians are referred to through anecdotes or experiences.

The progress of surgery and the newer medicine are the subjects of a section covered by several chapters.

One criticism of the book might be that it has little continuity in the way the subject matter is presented. This, however, was not a drawback to the reviewer. It represents a popular method of public education which the author accomplishes by his style, illustrations, and general treatment of the subject. An interesting account is given of Dorothea Lynde Dix, who is termed America's most distinguished woman.

This book is recommended to lay persons and physicians alike, who wish a leisurely readable and entertaining volume. It is an addition to both the medical and general library.

SANGER BROWN, II.

Recent Advances in the Study of the Psychoneuroses. By MILLAIS

CULPIN, M. D., of London. 348 pages. P. Blakiston's Son & Company, Inc., Philadelphia, Pa.

This comprehensive treatise is one of a series of "Recent Advances" in medicine emanating from London and republished in this country. The author has no unique theories of his own to expound, but presents and explains the views of others. He begins by giving a historical outline of the contributions concerning the neuroses of medical leaders from Chareot down to Ferenczi. He follows with an interesting summary of the psychoneuroses of the war and an exposition of present views of leaders of different schools, including Freud, Jung, Adler, McDougall and others. Later chapters deal with special problems such as diagnosis, treatment, psychoneuroses in industry, occupation neuroses, etc.

A chapter on "The Psychopathology of Childhood" is contributed by Emanuel Miller—and one on "Psychotherapeutic Clinics," by J. R. Rees.

The book as a whole offers to the busy physician an easy means of access to recent developments in a most important branch of medicine.

POLLOCK.

Workers' Emotions in Shop and Home. By REXFORD B. HERSEY. 441 pages. University of Pennsylvania Press, 1932.

A year's intensive study of individual male workers from a physiological and psychological point of view was undertaken by Mr. Hersey in cooperation with the officers and men of the Pennsylvania Railroad System. Manual workers only were included in the first study and this was supplemented by three years' additional study of workers in non-mechanical occupations and other companies. The aim was the discovery and formulation of general pre-requisites for successful adjustment and of fundamental principles, applicable to all types of male workers. Four formulae were stressed: 1. Specialization on the normal worker. 2. Analysis of each man as a unit in his total setting. 3. Search for the factors actually making him happy or unhappy. 4. Determination of the conditions under which each man was most efficient and the role his emotions played.

The author has succeeded in discovering the factors favorable and unfavorable, responsible in a large degree for the adjustment of the worker in his situation. It is not surprising to read that there are two main groups of conditioning influences, those from within and those from without the individual.

The individual's feeling tones, intellectual capacity, state of health, age, and reaction to past successes, or failures; his home influences; super-

visors and fellow-workers; the physical set-up in which he works; and climatic conditions were found to be of great importance. As external and internal factors affects the individual's reaction to his job, it was discovered that his satisfaction or dissatisfaction with his job in turn conditioned his reactions at home. The worker's emotional fluctuations over a period of weeks were studied and analyzed as to cause, duration and effect on productivity, with very interesting results.

The author has drawn some very interesting inferences and made very constructive suggestions regarding working conditions, personality traits of foremen or supervisors, and adequate incomes. His study shows the helpful effect that security, cooperation and consideration in the family circle of the worker, sane and helpful recreation and a sound philosophy of living, have in integrating the personality of the worker and making for a general satisfactory adjustment on his part.

ETHEL B. BELLSMITH.

The Prisoner's Soul and Our Own. By EIVIND BERGGAV. 182 pages. J. M. Dent & Sons, Ltd., London. 1932.

This small volume of 182 pages, "The Prisoner's Soul and Our Own," is as interesting a book to the reviewer as has come to hand in many a day. It is translated from the Norwegian and written by the Bishop of Tromso, Eivind Berggav, who for ten years, had been prison chaplain at a prison in Oslo. The book has been translated into German, Dutch, Swedish and now English.

One is given a picture of how the prisoner thinks and feels which seems to portray the truth of such feelings as nearly as can be reached in problems of this kind. The prisoner's constant preoccupation with his sentence, his unnatural, stimulated, emotional state on admission, on parole, and on release (the release crisis), his almost infantile emotions, brought out by his life in prison, his need for talk and confidence, his bitterness and suspicion, his attitude toward home, family, wife, mother, and other women—all of these situations are dealt with in a deeply understanding manner. The writer emphasizes throughout that prisoners do not definitely differ in mental make-up, desires, emotions and in other respects from persons living in the community.

One feels that, except for the fact that at this prison in Norway there are milder and calmer prisoners than are generally seen in this country, the problems are universal. To one interested in prisons, this book is highly recommended. To the general reader, interested in human and psychological problems, it is of exceptional interest.

BROWN.

Health and Home Nursing. By GEORGE MARGARETTA DOUGLAS, A. M., R. N., formerly instructor in teaching of home nursing child care, Teachers College, Columbia University. 383 pages, illustrated. G. P. Putnam & Sons, New York. Price \$2.50.

This is a well-organized book with illustrations and charts to the point, and chapter headings clearly defined. The author presents various problems entering into the care of the sick in the home, with methods for solving them; also many simple home nursing treatments, with clear descriptions on procedures which are outlined step by step and easily followed.

The clear print on dull paper makes the book one that can be read without unusual eye-strain. The headings of the chapters are so detailed that the book could be readily used for reference.

Chapters 1, 2, 3, and 4 give a very interesting account of health in primitive, ancient and medieval times, with the historical development of the health movement and health problems existing today which gives the reader a greater appreciation of the progress of centuries.

Chapter 6 treats in detail, a health program for the baby and pre-school child, emphasizing the importance of the early practice of health preservation.

Chapter 7 and 8, emphasizes the necessity of the proper attitude of the home nurse toward professional persons and the home itself.

Chapter 9 to 18—the material presented in these chapters is well systematized and in terms that are readily interpreted by the average lay person. The nursing procedures are such as could be carried out in the average home. The comprehensive discussion of the different phases of nursing makes this book most commendable for the use of the home nurse.

Chapter 20, brings out the necessity of giving the patient nursing attention in the form of occupational therapy during the convalescent period. The suggestions are quite practical and should prove beneficial to many, as that has long been a serious home problem.

The questions and activities, following each chapter stimulate self-quizzing, and keener observation of health standards in the home and community.

A complete index with list of articles for class room teaching and bibliography at the end of the book should prove most helpful to teachers.

HELEN V. CLUNE.

Growth and Development of the Child. Part I. General Considerations. White House Conference Publication on Child Health and Protection. The Century Company, New York.

This is the introductory volume of a series of four books which represent the work of the White House Conference Committee on Growth and Development. It is one of the contributions of the White House Conference on Child Health and Protection called by President Hoover. The chairman of the Committee on Growth and Development was Dr. Blackfan, professor of pediatrics, Harvard University Medical School. Thirty-two contributors to this volume are named, 12 of them professors or assistant professors of pediatrics, and the remainder representing such fields as genetics, psychology, physiology, biology, anatomy, child welfare, general medicine, tuberculosis, pathology, orthopedic surgery, public health, physical education, biophysics, vital statistics, and ventilation. One contributor in neurology and psychiatry is listed, the professor of those subjects in the St. Louis School of Medicine. But the report is more than a collection of individual opinions. After each topic had been drawn up on tentative form, the committee met together for free discussion and criticism of the facts and opinions presented by each member, so that the final publication is really a consensus of expert opinion.

In an introductory chapter the authors define their terms and point out the value of longitudinal studies, believing that the study of a relatively small number of individuals continued over a period of years seems to be the most promising method of attack upon the majority of unanswered questions in the field of growth and development. The two periods in which our knowledge is most defective are the new-born infant and the first few weeks of life and adolescence. There is a lengthy discussion of heredity and its inter-reaction with environment and they express the belief that the genetic factor is least generally understood. They discuss this phase in much detail but realize that heredity and environment cannot be thought of independently, one of the other. The pure environmentalist is criticized for assuming "that there is *the* child about which generally applicable rules of handling may be laid down. This convenient abstraction, *the* child, is a dangerous one, if taken too literally. Children differ in their constitution, in their general make-up, in their capacity for development in particular directions. Enthusiasm over successes with one method of child training may cause one to forget it was due largely to fortunate selection of those to whom the method was applied and to overlook the failures in the application of the method." The conclusion is to secure for each child the best environment for *that* child. This requires a study of each child of his constitution

or heredity, the measurement of his capacities and an alert attitude toward his reactions to special environments.

A comparative study was made of 50 pairs of identical and 50 pairs of fraternal twins, who were given a series of physical measurements, and a number of mental and educational tests. The difference between fraternal twins is remarkably similar to that between siblings, which is consistent with the view that the biological relationship is the same in both. The correlations in the identical twins are all high, except in rate of tapping. As a result of the comparative study it is concluded that nature is 17 times as influential as nurture in determining the number of finger ridges, 4 times as influential in determining height, weight and length and about twice as influential in determining I. Q., and equally effective in determining rate of tapping.

A chapter is devoted to the study of pre-maturity. In a chapter on human types the authors consider that the terms aesthenic and pyknie are not good contrasting terms and that on the basis of tests measuring strength and vigor the terms sthenic, asthenic and hyper-sthenic should be applied.

A chapter on sleep contains the usual suggestions relative to good sleeping habits and this, by the way, is the only detailed discussion of habit training in the book. The rôle of chronic fatigue in school children and children in industry is discussed, and recommended preventative measures described.

In a chapter on organized athletics during school age the shortcomings of athletic training are pointed out. It is charged that those who need the physical education most are generally the ones who are most neglected and that the sports and skills learned are not those useful in later life.

In a chapter entitled, "Body Mechanisms and Health" there is a detailed description of the requirements of good body mechanisms or posture, illustrated by diagrams. The prevalence of bad body mechanics is pointed out, their effect on health and the improvement following correction.

As a result of the study of over two thousand school children in Massachusetts as to the effect of group training in body mechanics it was shown that members of the regular school staff were able to give the children posture training which they had learned from experts without undue rearrangement of the school activities. Analysis of the records showed that posture training and the maintenance of correct posture contributed to the health and efficiency of normal grade school children.

The photo-dynamic activity of light and its therapeutic use are next discussed with the conclusion that it is a powerfully dynamic agent, but one about which our knowledge as to the mode of action and effect is amazingly

limited. A similar conclusion follows a discussion of the influence of atmospheric conditions. A chapter is devoted to socio-economic factors influencing growth and development. These factors, such as war, housing, race and nationality, child-bearing, labor, social and economic class, employment of mother and maternal care, and general intelligence of parents are individually discussed. All these have been shown by one investigator or another to be associated with growth and development of the child. Stating the exact nature of the relationship and the most profitable method of improving child health and development so far as these factors are concerned is, however, another matter. Few investigations have been sufficiently broad in scope and thorough-going in analysis to more than hint at the problem. We are far from any exact knowledge of the effect of many of the socio-economic factors on growth and development. Because the same causes are so frequently associated, it is impossible to judge the importance of the combined elements which enter into the situation.

Finally, there are discussed the topics, "Immunity and Age," and "Disease in Relation to Growth and Development."

The authors of the volume have presented the material in an exhaustive, clear and concise manner, weighing all evidence objectively and listing an impressive array of reference material. They keep their feet solidly on the ground and where information is lacking or inadequate they clearly point it out and indicate the pathways to further knowledge and research. The disappointing feature in the comparatively small space devoted to mental development and that which is discussed is limited essentially to intelligence. The emotional development receives little consideration. There is no reference to psycho-sexual development. One chapter is entitled: "Difficulties in Relating the Behavior of Children to Home Environment." It occupies 4 pages of the total 370 and there is no appended list of reference books. The authors conclude that there is very meagre objective evidence in the literature that emotional stress resulting from unwise parental handling, or from unfortunate conflicts of personality within the home, has a marked or lasting effect on the development of the child. They hold that the cases described in the literature are rarely, if ever, chosen at random, and are commonly selected with reference to some particular point of view, and that they may illustrate the possible working out of a theory, but cannot in themselves demonstrate the truth. It is stated that one of the common sources of fallacy in popular and semi-scientific thinking is the failure to distinguish between concomitance and etiology. They feel that we need some sort of measure, definition or description of actual behavior, shown by the individual in his everyday life, in terms of which the more convenient

test method may be evaluated. The situation is further complicated when not a single individual, but the social interaction of a group of individuals is taken into account. They believe it is unsafe to infer the nature of any stimulus (in any sense of objective reality) from the form of any given individual response, because co-stimuli that result from past experience, giving meaning to the immediate stimulus, may give rise to a very inappropriate response. On this account it is difficult to infer the nature of home conditions from the subject's verbally expressed reactions. All they admit is that these statements may suggest meanings which certain stimuli have taken on for the patient himself.

Such statements as these are of course entirely contrary to our point of view and belief and every day practice in the care of child guidance problems or psychiatric cases.

The author's statements are too condensed to permit any detailed answer; a much more lengthy discussion and detailed evaluation of the literature by them would be desirable.

SOLON C. WOLFF.

Psychiatry and Mental Health. By JOHN RATHBONE OLIVER. 300 pages. Charles Scribner's Sons, New York. 1932. Price \$2.75.

This book follows several designed for popular consumption, but is addressed to "those who come into *intimate* contact with the lives of many people," particularly clergymen, seminarians and social workers. As is well known Dr. Oliver writes from the viewpoint of the priest, practicing psychiatrist, and medical historian. If the former seem paramount it must be remembered that a priest is primarily a priest—and that the volume consists of the Hale Lectures of 1932, in an expanded form. However, the priest's traditional attitude is well-leavened by the psychiatrist's understanding, as is shown by his interpretation of some of the cardinal sins, and by his honest tribute to Freud, demonstrated further in the statement that he refers his appropriate cases to psychoanalysts. In the capacity of medical historian he doubtlessly explodes the calumny that has so long rested upon Onan and upon the men of Sodom—and endeavors to excite an interest in the related medical history to the subject at hand.

Dr. Oliver's principal thesis is the recognition of psychopathology in its incipient manifestations, and those methods of practical help available to the pastor and social worker, albeit there is a sly reference to the "so-called scientific practice" of modern social service. The volume is further designed to be an introduction to scientific psychiatric sources. It is well documented

with actual case material, the text is interlarded with classical references, and there is appended a fairly inclusive bibliography of "pastoral psychiatry." It reflects wide psychiatric and clerical experience, and has been written painstakingly, honestly, with true humility, and in the manner of one who has lived according to his avowed principles.

The book opens with a survey of the general field and its possibilities. In beginning a discussion of human behavior he holds scant brief for behaviorism, terming it "merely a new-fangled way of evading moral responsibility by covering with a few flowers of psychological experiment the old hard chains of deterministic slavery." The writer points to the "easy intimate" contact of the pastor with his maladjusted parishioner, comparing it to the "fearful step," for that parishioner, of consulting an alienist—often too long delayed. In this connection he deplores the lack of psychiatric experience in the seminarian's training, and commends one well-known psychopathic hospital for affording such practical experience to theological students. Dr. Oliver feels that the pastor or social worker should be prepared to strive for the correction of faulty mental habits in their incipiency, and whenever they recognize impending symptoms of disease, refer their patient to a psychiatrist or clinic. This is their field, and in its practice he pleads for individualization, and an understanding of the "why of sins."

There follows an explanation of the terminology, and a brief description of representative psychoses is begun. One might sniff at Dr. Oliver's mysticism in failing to deny demoniacal possession, and be uneasy at his statement that "as long as a person 'fears he is losing his mind,' just so long may he be sure that he has a fast hold on the tail of it"—remembering many early schizophrenies of everyday experience. The author's own preparations against a possible psychosis epitomize his own proper attitude toward mental health. Dr. Oliver's suggestions relative to the manic-depressive group are generally sound, although objections might be raised to the term "blocking" in this connection, and his statements relative to the unalterable course, and inevitable recovery. The "imaginary" interview by the pastor with his depressed patient on page 46 is singularly apt, and well illustrates the author's working method. Although propounding a diatribe against the old bogey heredity, the reviewer feels that the writer overlooks an opportunity to dispense valuable advice relative to child guidance—the erux of mental hygiene, in refusing to discuss causation, although this is hinted at in the pertinent case material, and in regard to the juvenile criminality of today. The discussion of the psychopathology of schizophrenia, and of the management of the epileptic, is particularly valid, but this reviewer fails to see where the making of even rudimentary neurological

tests to determine the presence of paresis—falls within the province of either the priest or social worker. It would seem that in advocating such procedures to his fellow clerics, Dr. Oliver forgets that he himself is a psychiatrist. The author's understanding of, penetrating remarks, and case material upon—alcoholism, and drug (and medicine) addiction are most practical.

Almost the final half of the volume is devoted to the psychoneuroses, and the sexual factors concerned in emotional maladjustments. Rightly enough it is maintained that this is a fertile field for the enlightened clergyman or social worker, and one in which great service may be rendered. Phobia, obsession and inhibition are briefly but clearly defined, although the psychoanalyst would question Dr. Oliver's derivation of fear, his analysis of the hypothetical case cited on page 147, and his method of treatment—practical, but entirely on the conscious level. The cure of the obsessively "cursing clergyman" related on page 154 is amusing but points its lesson. In reference to the transference of penitent to confessor, he remarks that sexual wish-fulfillments are not easy with the former on his (or her) knees! One is led to wonder at the suggested explanation of the symbolical value of Friday the thirteenth, however.

Great tolerance, understanding and common sense are displayed by the author in his dissertation upon the sexual factors of maladjustment. The audience to whom this book is addressed—the cleric and social worker will be well advised to digest this advice, and particularly endeavor to capture his *attitude* toward the unfortunate patient. Dr. Oliver's pages dealing with autoerotism, homoerotism, contraception as opposed to birth control, his cure of "the divorcee evil," and the results of "the disintegration of the middle-class American home," are all well founded. One may however question seriously his interpretation of the actual cause of frigidity in the prostitute, and his belief in the congenital origin of homoerotism. His quoted conclusions relative to autoerotism in women and its results, compare with those of Jung, and considering his recurring preoccupation with "petting" and "necking" it is probable he would enjoy Brill's differentiation of the one from the other.

The final chapter entitled "Religious Faith and Practice," is one in which the Reverend Oliver pleads for "the day * * * when priests who are interested in mental illness will be able and willing to devote their lives to bringing to the inmates of mental hospitals and clinics, not sermons and things said, but sacraments and things done, "and warns of probable failure for the would-be mental hygienist unless he be a 'dynamic Christian'." This reviewer, risking the stigma of being termed one of those "psychiatrists

* * * quite tolerant of the Catholic faith as a sort of pleasant self-hypnosis, a kind of diluted Eleusinian mystery, that might have some sort of therapeutic effect like occupational therapy," excuses himself from pronouncing judgment upon the writer's advocated place of religion in psychiatry, but warmly endorses Dr. Oliver's obvious sincerity. Further the ominous religious conflicts of adolescent pre-schizophrenies would more rarely develop were Dr. Oliver's type of doctrine the one universally dispensed.

This volume is highly recommended to all "who come into *intimate* contact with the lives of many people"—psychiatrists, social workers, educators and clergymen particularly. The reviewer is constrained to conclude with the statement that Dr. Oliver's patients are singularly fortunate.

NEWTON J. T. BIGELOW.

EPILEPSY AND NARCOLEPSY ASSOCIATED WITH HYPERINSULINISM

Report of three cases of epilepsy and of one case of narcolepsy cured clinically by partial resection of the body and tail of pancreas. By Seale Harris, M. D., Birmingham, Ala. The Journal of American Medical Association, Vol. 100, No. 5, page 321, Feb. 4, 1933. Abstracted by L. A. Damon, M. D.

After an introductory plea for the use of the term "convulsive state" rather than epilepsy the author states that: "Within recent years an attempt has been made to correlate the symptoms of hyperinsulinism with those presented by some epileptics, and cites 50 cases that have been reported in the literature since 1923, in 12 of whom recurring attacks of unconsciousness and convulsions were the predominating symptoms. Of these five were controlled by dieting, three were cured clinically by removal of adenomas of the pancreas, three were unimproved and two ended fatally. The fact that epilepsy is so rare among diabetic patients suggests that hyperglycemia in them (hypo-insulism) may be incompatible with epileptic attacks and adds another argument to the conclusion that hyperinsulinism may be a precipitating factor in some epileptics. Three cases of epilepsy are reported which seem to support this contention, in that their fasting blood sugar was between 50 and 70 mg. and sugar tolerance curves were quite characteristic of those found in hyperinsulinism. All three cases seemed to improve upon dietary regulation as to the amount of carbohydrate intake. Here one is apt to question the choice of title to the article which states that they were cured clinically when one reads that in all three cases convulsions have continued to occur since the treatment has been instituted, although at greater intervals. In one of the cases bromide therapy seemed to raise the blood sugar level and the author justly concludes that "One such test does not prove that the bromides will raise the blood sugar level in all epileptic patients who have hyperinsulinism, but it is suggestive." Included in the report is a case of narcolepsy presenting definite hypoglycemic symptoms and who apparently has made a recovery following resection of the tail of the pancreas. The author concludes that three cases of epilepsy and one case of narcolepsy do not prove that hyperinsulinism is the causative factor but that at least they do suggest a possible relationship between it and the convulsive state. The article recommends itself to those interested in the subject by the completeness of the bibliography and logical and conservative conclusions drawn.

EDWARD NATHANIEL BRUSH

Dr. Edward Nathaniel Brush, editor, psychiatrist and hospital administrator, died of pneumonia at his home in Mount Washington near Baltimore, January 10, 1933, after an illness of only five days.

Dr. Brush was born in Erie County, New York, in 1852. He graduated from the medical department of the University of Buffalo in 1874. The same year he began psychiatric work under Dr. John P. Gray at Utica State Asylum. After serving six years in that institution he accepted a position in the men's division of the Pennsylvania Hospital at Philadelphia. He occupied this position until 1891 when he was appointed superintendent of Sheppard Asylum at Towson, Md. The institution prospered under the management of Dr. Brush, and in 1898 received a bequest from Enoch Pratt and became the Sheppard and Enoch Pratt Hospital. Dr. Brush continued as superintendent until 1920 when he was succeeded by Dr. Ross McC. Chapman.

Although successful as a hospital administrator, Dr. Brush won greater distinction in editorial work. While at the Utica Asylum he was on the editorial staff of the American Journal of Insanity then printed by the Utica State Hospital. He severed his connection with the Journal when he went to Philadelphia but in 1897 he again became a member of the editorial board, and in 1905 was appointed editor-in-chief. He continued in this capacity until 1931 when he was succeeded by Dr. Clarence B. Farrar. His retirement was officially announced at the annual meeting of the American Psychiatric Association at Toronto. A dinner was held in his honor by members of the association and a substantial check was given him in recognition of his long service in behalf of the association.

Dr. Brush also won an honored place as a teacher in psychiatry. He was professor of psychiatry at the Woman's Medical College of Baltimore from 1896 to 1899. In the latter year he accepted a like position at the College of Physicians and Surgeons at Baltimore which later became affiliated with the University of Maryland. He continued in this work until 1920 when he became emeritus professor.

Dr. Brush was an active member of the American Psychiatric Association for more than 40 years and was its president in the year 1915-1916. He will be greatly missed when the members come together in Boston next June.

Dr. Brush lived a long, active life. Comparatively few men in the psychiatric field have accomplished so much or enjoyed the fellowship of so many comrades.

CAUSES OF ILLNESS IN 9,000 FAMILIES, BASED ON NATION-WIDE PERIODIC CANVASSES, 1928-1931

BY SELWYN D. COLLINS,
SENIOR STATISTICIAN, UNITED STATES PUBLIC HEALTH SERVICE

SUMMARY

It is becoming increasingly evident that mortality statistics do not furnish an accurate description of the health of a given population. Such information must be sought in statistics of morbidity. Unfortunately the latter data are reported for only a relatively few diseases, and even for these are usually far from complete. To obtain more reliable data on the causes and incidence of illness, the United States Public Health Service and the Committee on the Costs of Medical Care cooperated in a survey of illness in almost 9,000 families. The families were visited by public health nurses, usually assigned by State or local health officers. These visits were distributed over a period of 12 months, each family being interviewed from four to eight times in the course of the year. At each visit the nurse made a record of all illness occurring during the preceding period. Thus a record of illness was obtained for each member of the family over a period of 12 months. The observations represented a total of 38,544 person-years of life, in a population of 8,758 white families distributed in 130 localities in 18 states. Records of households began in February, 1928, and ended in June, 1931.

The surveyed group differed in some respects from the general population of the United States, as shown by the census of April 1, 1930. The former had a greater percentage living in large cities. The average size of the family exceeded that for the comparable white families, in 1930, the average being 4.41 and 3.80 respectively. The surveyed group showed an excess of children and a deficiency of older persons. The percentage of females was higher in the surveyed population than in the United States as a whole. The former group also showed a larger percentage of native-born and of married individuals. In the important matter of economic status, it was found that the surveyed population was weighted in the direction of large income groups, i. e., incomes above \$5,000.

The annual illness rate for the surveyed population was 850 per 1,000 persons. Illness resulting in loss of time from work, school or other occupation totaled 516 per 1,000 persons. Illness resulting in confinement to bed for one or more days amounted to 434 per 1,000 persons. Minor respiratory conditions are the most frequent cause of illness. Accidental injuries come next, followed by indigestion and other stomach disorders.

NOTES

—The next annual meeting of the Association for the Study of the Feeble-minded will be held at Hotel Statler, Boston, Mass., May 31-June 3, 1933. Dr. Howard W. Potter is president of the association and Dr. Groves B. Smith, secretary-treasurer. As the annual meeting of the American Psychiatric Association is to be held at the same time and place, the members of both associations may be assured of receiving reductions in railroad rates.

—Dr. Earl V. Bond, superintendent of the Pennsylvania Hospital for Mental Disease in Philadelphia, was recently awarded the Bok prize of \$10,000 and a gold medal for his outstanding contributions to the social welfare of the city. With his characteristic generosity he has turned over the money to the Pennsylvania Hospital. Dr. Bond is a leading member of the American Psychiatric Association and served as its president in 1929-1930.

—A movement is under way in Pennsylvania to secure complete state care of the mentally ill, mentally deficient and epileptic. Some of these wards are now cared for in county institutions and some in state institutions. A bill is now before the Pennsylvania State Legislature to authorize the transfer of the Philadelphia Hospital for Mental Diseases to the state to be operated as a state mental hospital.

—Announcement is made that the Association for Research in Nervous and Mental Diseases will discuss the "Biology of the Individual" at the scientific meeting to be held in December, 1933. The provisional program contains a wide range of topics covering various constitutional problems, relation of mind to body, psychological development, etc. The president of the association for the year is Dr. J. Ramsay Hunt and the secretary-treasurer is Dr. Thomas K. Davis.

—The thirteenth annual meeting of the Association for Research in Nervous and Mental Disease which was held in Hotel Commodore, New York City, December 28-29, 1932, was devoted to a discussion of the "Localization of Function in the Cerebral Cortex." Papers were presented by several of the leading neurologists of the country. Dr. Bernardus Brouwer, distinguished neurologist of Amsterdam, Holland, was a guest of the association and addressed two of the sessions. The meeting was conducted by Dr. Samuel T. Orton, president of the association and chairman of the program committee. Other officers of the association were George B. Hassin, M. D., and Wilder Penfield, M. D., vice presidents; Thomas K. Davis, M. D., secretary-treasurer; and Angus M. Frantz, M. D., assistant secretary.

—Dr. Edward O. Stout, former member of the medical staff of the Utica State Hospital, died suddenly at his home in Earlville, N. Y., February 15, 1933. Dr. Stout was a native of Troy, N. Y., and a graduate of the Albany Medical College. He served in various grades in the medical service of Utica State Hospital and became acting first assistant physician during the war period. In 1919, he left the hospital to engage in the co-management of Craig House, a private licensed institution for mental cases near Beacon, N. Y. He retired from this work about two years ago.

—Dr. Howard W. Potter, assistant director of the New York Psychiatric Institute and Hospital, is the author of chapter two, "Mental Deficiency," occurring in the latest pages of "Nelson's Loose-Leaf Living Medicine." Mental deficiency is discussed under definitions and general symptomatology, history, social implications of mental deficiency, psychobiology of mental deficiency, the case study, clinical types, and treatment and prevention. Numerous illustrations are shown of clinical types. The discussion throughout represents modern views in respect to the causes, diagnoses, symptoms and social importance of mental deficiency. Treatment and prevention are considered from a comprehensive viewpoint. Sterilization is recommended but with certain limitations and the author appears to believe that it may not prove the panacea which some persons consider it. This article, combining as it does a thorough presentation of both the medical and social aspects of mental deficiency, is of unusual importance.

—The meeting of the American Psychiatric Association at Hotel Statler, Boston, Mass., May 29-June 2, 1933, promises to be of unusual interest. Among the important topics announced in the preliminary program are the following: "Psychotherapy in Public Mental Hospitals," "Interpretation of Symptom Syndromes," "The Work of the Institute for Child Guidance," "The Management of Problems of Decreased Support," and others of like significance.

On Wednesday morning, May 31, will be held a joint session with the American Psychoanalytic Association and in the afternoon of that day a joint session with the American Association for the Study of the Feeble-minded.

An annual dinner is announced for the evening of May 31.

Dr. James V. May is president of the association and Dr. Clarence O. Cheney, secretary-treasurer. Dr. L. Vernon Briggs of Boston is chairman of the committee on arrangements.

—A Study of the Costs of Venereal Disease to St. Louis was recently made by H. C. Loeffler, C. E., for the Missouri Social Hygiene Association and St. Louis Bureau of Municipal Research. Venereal diseases constitute one of the major medical problems because of their wide-spread prevalence, and the manner in which they complicate a great variety of other conditions. Their social ramifications are equally important. Among the latter the costs of venereal disease constitute a highly important element. Such costs were classified under the following headings: 1. Public institutions; 2. private physicians; 3. private institutions; 4. prostitutes; 5. miscellaneous items; 6. economic losses to industry and society. An effort was made in each case to allocate the proportion of the expenditures that were devoted to the treatment of venereal diseases in one form or other.

Many of the items under 5 and 6 are not susceptible of accurate financial measurement. The costs of the others, however, are estimated as follows:

	Minimum	Maximum
City institutions	\$329,042	\$343,413
State institutions	88,170	88,170
Other public institutions	12,400	12,400
Private physicians	236,000	236,000
Private institutions	1,290,783	1,314,933
Prostitutes	115,000	565,000

The annual costs of venereal disease to metropolitan St. Louis are therefore estimated to range between \$2,071,000 and \$2,560,000.

—The Quarterly Bulletin of the Milbank Memorial Fund for January, 1933, contains an important article on "Improved Technique in the Surgical Treatment of Facial Palsy," by Arthur B. Duel. In 1930, Dr. Duel collaborated with Sir Charles Ballance of London in animal experimentation to discover, if possible, some method by which the operative treatment of facial palsy might be improved. Dr. Ballance had previously done noteworthy work in nerve grafting. The results of their joint efforts are described by Dr. Duel as follows:

"Aided by funds from four foundations and a few personal friends, we constructed an animal laboratory at my country place at Holmes, Dutchess County, New York, where we might work in undisturbed quiet, and where the equipment and surroundings were such that the animals could be kept in perfect health for indefinite periods."

"We finally demonstrated that a direct repair of the injured facial nerve might be made by the use of autoplasic nerve grafts. We employed many different nerves—both motor and sensory; any length we desired—either reversed or unreversed. They all were successful. The facial movements

were restored without any associated movements; moreover, emotional response, as well as voluntary control, of the facial muscles, was restored.****

"Now in all these cases, both animal and human, the long wait for results after the grafts had been transplanted was very irksome. During the past six months, I have endeavored to improve the technique by using, for graft material, transplants from nerves which have been severed and allowed to remain *in situ* until they had undergone certain degenerative changes which must take place in all injured nerves before regeneration can occur."

"It has been well known over a long period of years that the distal segment of a divided nerve goes through a process of degeneration in which the active nerve cells are broken down and the detritus removed by the circulation; the remaining empty tubules are then ready to conduct new neurons which grow in from the proximal segment. This degeneration must take place in the transplanted graft as well as in the distal segment. As a matter of fact, the graft becomes a part of the distal segment, behaving in the same manner; whereas the proximal segment does not undergo the process of wallerian degeneration."

"The process necessarily goes on much more laboriously where the new circulatory apparatus in the transplanted graft is being reproduced slowly. It therefore seems reasonable that the degenerative process and cleaning of the tubes should take place much more rapidly when the nerve, which is subsequently to be used for the graft, is allowed to remain *in situ* for a time after being severed. This process takes from two to four weeks. The graft material seems to be at its best in from two to three weeks."

"The tubules at this time have a strong attraction for the neurons which are pushing in from the proximal segment. They pass through with almost incredible speed and on into the distal segment. Their eventual termination in the end plates in the muscle fibres is heralded by a returning response to faradie stimulation. This response returned, in the last animal which I operated, 13 days after a transplant of 10 millimeters of degenerated anterior femoral cutaneous nerve had been placed in the divided facial nerve."

"The experiment was first tried in a series of Rhesus monkeys. The results were amazing. In from two to four weeks, when degenerated grafts were used, responses were obtained which it had taken as many months to accomplish when fresh grafts had been employed."

"I have now used the same method on three humans. In two of them, I have already noted response after 30 days which have never, after the employment of immediate grafts, been noted in less than from 90 to 240 days. It seems probable that the use of "prepared" grafts (degenerated

in situ) will shorten the time and improve the quality of the restored function."

"In every case, it seems probable that direct repair by grafts will be the operation of choice over anastomosis with other nerves, except in the rare instances in which the palsy has been caused by an intracranial lesion."

"The research, which led up to the gratifying improvement in results in the surgical treatment of this appalling malady in humans, has been made possible by generous contributions from the Milbank Memorial Fund, the Carnegie Corporation, the Lillia Babbit Hyde Foundation, the New York Foundation, and a number of personal friends.